TRANSACTIONS

OF THE

Maine State Pomological Society,

FOR THE YEAR 1892.

INCLUDING THE PROCEEDINGS OF THE WINTER MEETING HELD IN AUGUSTA, JANUARY 17th AND 18th, 1893.

EDITED BY THE SECRETARY,

D. H. KNOWLTON.

AUGUSTA:
BURLEIGH & FLYNT, PRINTERS TO THE STATE.
1893.

CONTENTS.

MAINE STATE POMOLOGICAL SOCIETY.

Transactions for the Year 1892–93.

REPORT OF THE SECRETARY.

A YEAR IN POMOLOGY.

For various reasons that I am unable to explain, it has not been the custom in our society for the secretary to offer any formal report at the annual winter meeting As we are meeting this year in the city where the society twenty years ago held its first meeting and perfected its organization, it seems best to depart from the custom of recent years. This is the only apology I have for offering this paper, which aims at giving a hasty review of the work accomplished in the State the past year.

It is gratifying to note that our own people are beginning to realize that here in Maine we have the most favorable conditions for successful fruit culture. While it seems to be a hard lesson for the State as a whole to learn, year after year the facts of successful fruit culture accumulate, and bear tangible evidence to him who will read them that year after year the fruit growers are making profitable gains from their orchards and small fruits. The surprising thing to sharp business men is that the farmers do not more quickly "catch on" to these facts and devote more time and intelligence to fruit culture. When Florida oranges can be profitably grown and retailed in towns several hundred miles from Boston for a cent and a quarter each, there can be no doubt about the profit of growing apples in this State that will retail for more money than these oranges. But there has been a steady gain from year to year though it sometimes seems to be very slow. So that there are now more fruit-bearing trees in the State than ever before.

For several years past the fruit crop of the State has been large, and of these crops the last one harvested is probably the largest and in quality ranks as one of the best. Of the extent of this crop we will quote the following from a recent issue of the *Maine Farmer:*

"Never before were so many apples harvested in the State in a single year. This conclusion can be relied on, without question, for growers have actually got the apples to prove it. From all the principal fruit growing sections of the State the reports are the same—'more apples than ever before raised in this vicinity.' This increase over past years is not due to extraordinary bearing. Many times before the trees have fruited as bountifully as this year. While trees generally bore a full crop, there are many young trees coming into bearing each successive year, and these are adding greatly to the crop. Maine has undoubtedly doubled her crop of winter apples in the last ten years, and if no killing winter interferes, will double it again in the next decade. This great crop is chiefly winter fruit. It is of good size, unusually high colored, and very free from worms. All in all it has been a great harvest of fruit."

To give some idea of the extent of fruit culture in individual instances we will refer to a few orchards in the State. President Pope from his orchard this year harvested nearly 2000 barrels of apples, mostly Baldwins. A. C. Carr of Winthrop gathered 500 barrels from his orchard, the Longfellows in the same town had 600 barrels, mostly of russets. Phineas Whittier of Chesterville has a crop that will reach 2000 barrels, largely Baldwins. The Rickers of Turner had nearly as many. There are others quite as large, and hundreds of farmers have gathered from 50 to 500 barrels of apples each, making in the aggregate one of the largest and most profitable of farm crops during the season.

Two years ago a Massachusetts dealer in apples who cares for nothing but the best fruit for his own market came to Franklin county and bought several car-loads of apples. The apples were of excellent quality, and this season he began to look around for fruit. He came to the county for the second time and began first of all to seek fruit of those of whom he had bought two years before. When he found fruit that suited him, he bought it if he could. In some cases he paid fifty cents more than the local buyers would offer because he wanted the fruit. His coming annoyed other buyers, but he bought what fruit he needed. The circum-

stance suggested two lessons, that good fruit sold this year not only brings a good price but recommends the fruit of the locality for years after, the other lesson is the importance of producing and offering for sale only the best fruit.

The markets in which our fruit has found a sale are also deserving of some notice as well as the improved facilities that are being afforded for forwarding the fruit. The crop in the West and Southwest was very light, and thousands of barrels of Maine apples have been sent to Chicago, Minneapolis, Cincinnati, Omaha, and to other points West and South. It may be well to note that on one occasion an entire train loaded with apples was sent from the city of Portland to the West. We regret to learn that much complaint has been made of the quality of these apples, for it takes a long time in trade as well as morals to overcome the ill odor that hovers about a bad name. The foreign markets have been largely supplied with Canadian fruit, and most of the season prices have ruled low, so low in fact that buyers have found the market in the states as good or better. Several ocean steamers have provided artificial ventilation for the apartments in which the fruit is stored. The fruit stands up much better and reaches the foreign market in much better condition. This suggests that there may be more satisfactory methods of packing our fruit, especially such as sell for the dessert. When this class of fruit is worth as much as oranges in the markets of the world we are quite confident that fruit growers should take as much pains in sorting and packing as do the orange growers of Florida and California.

As a pleasing incident in connection with our fruit interests it gives us pleasure to call attention to the exhibit made by Mr. C. A. Arnold, a member of our society from Arnold, at the Brockton, Mass., fair which occurred shortly after ours. The officers of that society were so well pleased with this exhibition, that although it was missent and arrived late, a liberal gratuity was awarded Mr. Arnold. We approve of making exhibits at other fairs and believe it would pay for our fruit growers to follow it up. From this particular exhibit we learned through several private sources, satisfying us that Mr. Arnold deserves our thanks for making the exhibit.

There have been only two special meetings of the Executive Committee. Other meetings were held the day following our winter meeting at Cornish and during the exhibition in Lewiston. It has

been the purpose of the officers to have as few meetings as possible on account of the expense connected with them. At the first meeting the premium list was revised. At the annual autumn meeting the accounts of the fair were examined and approved, and arrangements were entered into between the Executive Committee and the Executive Commissioner of the World's Columbian Fair, and in November the committee were again called together on account of matters connected with the World's Fair.

The Executive Committee were not inclined to have anything to do with the World's Fair, as they did not think at so late a date it would be possible to make a creditable exhibition of Maine fruits and their products. Just before the time of our fair we were notified by the Executive Commissioner that he was ready to make a contract with our society to make a fruit exhibition at the World's Fair, and that for that purpose the sum of $1000 had been placed at his disposal. The matter was referred to our annual meeting, and the executive officers were authorized to take such action as their judgment might dictate. They were in doubt as to the best course to pursue, but many members urged the officers to undertake the collection of the fruit exhibit and do all the means at the disposal of the society would permit. It was not, however, until the 30th day of September that arrangements were finally determined. At this time the committee appointed H. W. Brown and A. E. Andrews to have "charge of collecting, preserving and preparing fruit for the exhibition of fruit at the World's Fair." Later having completed the collection and placed it in cold storage, the Executive Committee contracted with Mr. Willis A. Luce to forward the fruit at the proper time and install the exhibition. Some fifty varieties of fruit were collected, some of which were contributed, and others purchased. The following is the list of fruits contributed by the members of our society and others.

Alexander—Miss Grace M. Sleeper. Lewiston, specimens.
American Beauty—Benson W. Brown, East Wilton, "
American Golden Russet—Alonzo Butler, Union, "
American Golden Pippin— " " " "
Bailey Sweet—Mellen Hayes, Farmington, "
J. B. Knowlton, Strong. "
Baldwin — C. C. Cushman, Farmington, "
I. C. Dudley. Readfield, "
Miss Mary Addle, Readfield, "

Baldwin — Miss H. Del'a Porter, Readfield, specimens.
J. E. McCormick, " "
Elina Royal, " "
J. T. Sherburne, " "
G. K. Staples, Temple, one barrel.
J. W. True, New Gloucester, one barrel.
E. K. Whitney, Hartford, "
Charles S. Pope, Manchester, "
Charles I. Perley, Vassalboro, "
B. M. Titcomb, Farmington, one bushel.
Ben Davis—T. M. Merrill, West Gloucester, one barrel.
H. A. P. Kyes, Industry, specimens.
Black Oxford—Alonzo Butler, Union, "
Blue Pearmain—John Knowlton, Farmington, specimens.
John F. Norton, " "
Alonzo Butler, Union, "
Boardman—E. F. Purington, West Farmington, "
Boston Baldwin—Miss Emma A. Glidden, Readfield, "
Canada Red—B. M. Titcomb, Farmington, "
Wm. H. Hunter, Strong, "
Carver—Miss Emma A. Glidden, Readfield, "
Miss Mary Addle, " "
Chenango Strawberry—M. P. Tufts, Farmington, "
Crab-apples—Miss Minnie A. Dudley, Readfield, "
Deane (Nine Ounce)—M. P. Tufts, Farmington, "
Dudley's Winter (seedling) —J. W. Dudley, Castle Hill, specimens.
Ewart—C. C. Cushman, Farmington, specimens.
Fallawater — Alonzo Butler, Union, "
C. M. Knowlton, Belfast, one barrel.
J. S. Hoxie, Fairfield, "
Fall Harvey—John S. Gay, Farmington, specimens.
E. W. Gould, Jay, "
B. W. Brown, East Wilton, "
Fall Pippin —D. H. Knowlton, Farmington, "
Fameuse— John S. Gay, Farmington, "
Alonzo Butler, Union, "
C. C. Cushman, Farmington, "
R. H. Smith, " "
Fameuse Sucre—C. C. Cushman, " "
Fletcher Sweet—Alonzo Butler, Union, "
Furbush Sweet (seedling) —A. W. Furbush, E. Wilton, specimens.

Garden Royal—E. Lord, Farmington, specimens.
Gilliflower — John S. Gay, " "
Wm H. Hunter, Strong, "
J. E. McCormick, Readfield, "
Golden Ball—A. F. Hardy, Farmington, "
Herman Corbett, " "
Granite Beauty—C. C. Cushman, " "
Gravenstein—Charles S. Pope, Manchester, "
S. F. Knowlton, Strong, "
Grimes' Golden—Alonzo Butler, Union, "
Hurlbut—A. N. Goodridge, Industry, "
Jewett's Fine Red (Nodhead)—R. H. Smith, Farmington, specimens.
Alonzo Butler, Union, "
King of Tompkins—J. F. Norton, Farmington, specimens.
Alonzo Butler, Union, "
King Sweet—Dennis H. Smith, Farmington, "
Lord Russet (seedling) —E. Lord, " "
Mann—A. F. Hardy, " "
McIntosh Red—C. C. Cushman, Farmington, specimens.
Phineas Whittier, Chesterville, "
Mother—Alonzo Butler, Union, "
Miss Amy A. Dudley, Readfield, "
Mt. Vernon Red—Hiram Gilman, " "
Northern Spy—David Dudley, " "
E. A. Lapham, Pittston, one barrel.
Hall C. Burleigh, Vassalboro, one barrel.
Elina Royal, Readfield, specimens.
Miss H. Della Porter, Readfield, specimens.
Olive (seedling) —Albert W. Furbush, Farmington, "
Oxford—S. A. Dudley, Readfield, "
Peck's Pleasant—S. R. Sweetser, Cumberland Cen., "
Pennock's Red Winter—Alonzo Butler, Union, "
Porter—S. F. Knowlton, Strong, "
Poughkeepsie Russet—Alonzo Butler, Union, "
Pound Sweet—B. W. Brown, Wilton, "
Pumpkin Sweet—Dennis H. Smith, Farmington, "
Rambo—Alonzo Butler, Union, "
Rhode Island Greenings—C. S. Phinney, Standish, one barrel.
David Dudley, Readfield, specimens.
J. T. Sherburne, " "
Roxbury Russets—G. W. Waugh, Winthrop, one barrel.

Rubicon—E. Lord, Farmington, specimens.
Russian Crabs—S. A. Dudley, Readfield, specimens.
Sally (seedling) —A. W. Furbush, E. Wilton, "
Sarah—B. W. Brown. " "
Seedling (unnamed)—J. B. Knowlton, Strong, "
Seek No Further—Wm. H. Hunter, " "
Specimens—M. V. Dudley, Readfield Depot, one barrel.
L. H. Blossom, Turner, "
S. H. Dawes, Harrison, "
S. C. Harlow, Bangor, "
James Nutting, E. Perham, one box.
W. S. Phinney, Standish, "
J. A. Wellman, Brooks, "
——— ———, Waldoboro, "
David Morrill, Cornish, one box.
S. R. Sweetser, Cumberland Center, one box.
A. A. Eastman, Dexter, "
S. R. Carleton, Cedar Grove, "
D. J. Briggs, So. Turner, "
Spitzenburg—John F. Norton, Farmington, specimens.
S. Frank Knowlton, Strong, "
Stark—J. Libby, Gray. "
St. Lawrence—Alonzo Butler, Union, "
Twenty Ounce—A. B. Jennings, Farmington, "
Unnamed Varieties—John Knowlton, " "
(4)—Alonzo Butler, Union, "
Wagener—Benson W. Brown, E. Wilton, "
Wealthy—H. L. Foot, Wilton, "
Winthrop Greening—A. F. Hardy, Farmington, "
Yellow Bellflower—R. H. Gardiner, Gardiner, one barrel.
Miss Emma A. Glidden, Readfield, specimens.
Wm. R. Wharff, Gardiner, one barrel.
A. E. Andrews, " "
Yellow Favorite—Alonzo Butler, Union, specimens.
York Russet—A. F. Hardy, Farmington, "
Pears—S. C. Harlow, Bangor, one box.
M. V. Dudley, Readfield, specimens.
Alonzo Butler, Union, "
Cranberries—A. C. Greenleaf, Farmington, one box.
L. H. Blossom, Turner, "
Barberries—Mrs. Fitzsimmons, Moscow "

The apples cred ted in the list to Alonzo Butler, Union, include his own contributions and apples contributed by R. B. Robbins, A. J. Young, G. W. Butler, Union; Hon. N. A. Farwell, Rockland; E. D. Gushee, A. F. Gushee, V C Kellar, Dr. Frank A. Gushee, Appleton.

Experiments were undertaken to preserve more or less of the fruit so as to show in glass, but they were not successful and the fruit was destroyed.

At first we suppossed it was reasonably certain just what we could do, but as the collection of fruit was progressing we found there were many uncertainties about the whole matter and some of them even unsettled up to the last moment. We expected one of our special committee would be able to visit Chicago and study the situation, but in this we were disappointed and were obliged to await the slow process of correspondence. As it is uncertain how well our fruit may hold up for the purpose of exhibition, it was our intention to show as many varieties as possible along with our green fruits, in some preserving fluid, but it took a long while to get the consent of the Chief of the Horticultural Department to do so. It is the purpose of the Executive Committee to make the best showing possible with the money placed at their disposal. Many fruit growers have generously contributed fruit already and it is hoped that we may be able before the time comes to make arrangements for showing more varieties of green fruit to good advantage next fall. As soon as arrangements are perfected they will be announced, and it is hoped that the fruit growers of the State will lend a hand in making up the supply of suitable specimens for exhibition. Should another year be as good as the past year we are confident that we can make a good showing of single varieties in competition with other states. We believe, moreover, that the fruit growers of the State owe it to themselves to take advantage of any favorable opportunity that may offer itself in this direction.

Prof. Van Deman has always been ready to aid us in our work, and he and his assistants have the best wishes of our members. As illustrative of the work the Division of Pomology is doing, we were informed by Mr. Taylor that the department would exhibit at the World's Fair hand-painted models in wax of the following varieties of apples from this State:

Alexander, Bailey Sweet, Baldwin, Ben Davis, Blue Pearmain, Black Oxford, Bullock, Dudley's Winter, Fallawater, Fameuse,

Granite Beauty, Garden Sweet, Hubbardston, Mary, Minister, McIntosh Red, Mother, Nodhead, Naked Limb Greening, Northern Spy, Porter, Pewawkee, Peck's Pleasant, Pound Sweet, Rhode Island Greening, Roxbury Russet, St. Lawrence, Salina (seedling from Aroostook county), Stark, Starkey, Swaar, Tolman Sweet, Tompkins King, Twenty Ounce, Wagener, Wealthy, Yellow Bellflower.

Reference is also made to the business transactions of the executive committee and the society to be found in another part of this volume. Further mention is also made of the society's transactions under the reports covering the annual exhibition and the public meetings. To the general reader we commend the papers and discussions presented at our public meetings. In another part of these transactions these papers, etc., in condensed form, may be found. The class exercise, conducted by Miss Wilson, illustrative of agriculture and horticulture in the schools, may be found in the report of the secretary of the Board of Agriculture.

In this connection it is a pleasure to state that I am under obligation in many ways to Secretary McKeen, who has shown himself an active factor in promoting the interests of agriculture in Maine. At all times he has cordially aided us, and his assistance has been of the most efficient nature.

D. H. KNOWLTON, *Secretary.*

OFFICERS FOR 1893.

President.

CHARLES S. POPE, Manchester.

Vice Presidents.

S. H. DAWES, Harrison.

D. P. TRUE, Leeds Centre.

Secretary.

D. H. KNOWLTON, Farmington.

Treasurer.

CHARLES E. WHEELER, Chesterville.

Executive Committee.

The President and Secretary, *ex-officio*; H. W. Brown, Newburg; A. E. Andrews, Gardiner, resigned at winter meeting and Willis A. Luce, South Union, elected to his place; J. W. True, New Gloucester.

Trustees.

Androscoggin	County,	I. T. Waterman, East Auburn.
Aroostook	"	J. W. Dudley, Castle Hill.
Cumberland	"	S. R. Sweetser, Cumberland Centre.
Franklin	"	M. C. Hobbs, West Farmington.
Hancock	"	F. H. Moses, Bucksport.
Kennebec	"	E. A. Lapam, Pittston.
Knox	"	Alonzo Butler, Union.
Lincoln	"	H. J. A. Simmons, Waldoboro'.
Oxford	"	C. H. George, Hebron.
Penobscot	"	C. A. Arnold, Arnold.
Piscataquis	"	A. W. Gilman, Foxcroft.
Sagadahoc	"	A. P. Ring, Richmond.
Somerset	"	James S. Hoxie, North Fairfield.
Waldo	"	D. B. Johnson, Freedom.
Washington	"	M. S. Springer, Danforth.
York	"	John C. Small, Cornish.

Member of Experiment Station Council.

D. H. Knowlton, Farmington.

Committee on Nomenclature.

Z. A. Gilbert, North Greene; D. P. True, Leeds Centre; C. M. Weston, Belgrade.

Committee on New Fruits.

Willis A. Luce, South Union; T. M. Merrill, West Gloucester; J. W. True, New Gloucester.

MEMBERS OF THE SOCIETY.

NOTE.—Any errors or changes of residence should be promptly reported to the Secretary. Members will also confer a favor by furnishing the secretary with their full Christian names where initials only are given.

LIFE MEMBERS.

Andrews, A. Emery.....Gardiner
Andrews, Charles E.....Auburn
*Atherton, H. N.....Hallowell
Atherton, Wm. P.....Hallowell
Atkins, Charles G.....Bucksport
Atwood, Fred.....Winterport
Averill, David C.....Temple
Bennoch, John E..... .....Orono
Boardman, Samuel L.....Augusta
Briggs, D. J.....South Turner
Briggs, John.....Turner
Burr, John.....Freeport
Butler, Alonzo..... .....Union
*Carter, Otis L.....Etna
Chase, Henry M., 14 Quincy St., Portland
Chase, Martin V. B.....Augusta
*Clark, Eliphalet.....Portland
Cole, Horatio G.....Boston, Mass
Crafts, Moses.....Auburn
*Crosby, William C.....Bangor
Dana, Woodbury S.....Portland
Dawes, S. H.. .....Harrison
DeRocher, Peter.....Bradentown, Fla
Dirwanger, Joseph A.....Portland
Dunham, W. W..... .....North Paris
Dyer, Milton..... .....Cape Elizabeth
*Emerson, Albert.....Bangor
Emerson, Charles L.....South Turner
Farnsworth, B. B.... .....Portland
Frost, Oscar F.....Monmouth
*Gardiner, Robert H.....Gardiner
Gardiner, Robert H.....Boston, Mass
George, C. H. .....Hebron
Gilbert, Z. A..... ...North Greene
*Godfery, John E.....Bangor
Gurney, Lemuel.....Hebron
Hackett, E. C.....West Gloucester
Hanscom, John..... .....Saco
Harlow, S. C..... ... .Bangor
*Harris, N. C. ....Auburn
Harris, N. W.... ....Auburn
Harris, William M..... Auburn
Harvey, F. L.....Orono
*Hersey, T. C.....Portland
Hobbs, M. Curtis.....West Farmington
Hoffses, Elmas.....Warren
Hoxie, James S.....North Fairfield
Hoyt, Mrs. Francis.....Winthrop
Ingalls, Henry..... .....Wiscasset
Jackson, F. A.....Winthrop
*Jewett, George.....Portland
Johnson, Isaac A.....Auburn
Jordan, Francis C.....Brunswick
Kenniston, E. H.....Arnold
Knowlton, D. H.....Farmington
Lapham, E. A.....Pittston
Lombard, Thurston M.....Auburn
*Low, Elijah..... ..... Bangor
*Low, S. S..... .....Bangor
McLaughlin, Henry.....Bangor
Merrill, T. M..... ....West Gloucester
*Metcalf, M. J.....Monmouth
Moody, Charles H.....Turner
Moore, William G. .....Monmouth
Moor, F. A.....Waterville
Morton, J. A.....Bethel
Morton, William E.....Portland
*Noyes, Albert.....Bangor
Perley, Chas. I...Seward's (Vassalboro')
Pope, Chas. S.....Manchester
Pulsifer, D. W.....Poland
Purington, E. F.....West Farmington
*Richards, F. G.....Gardiner
Richards, John T.....Gardiner
*Richardson, J. M.....Gardiner
Ricker, A. S.....Turner

*Deceased.

LIFE MEMBERS—Concluded.

Roak, George M.....Auburn
Robinson, Henry A.....Foxcroft
Rolfe, Samuel.....Portland
Sawyer, Andrew S.....Cape Elizabeth
Sawyer, George B.....Wiseasset
*Shaw, Stillman W.....West Auburn
Simmons, H. J. A.....Waldoboro'
*Smith, Alfred.....Monmouth
Smith, Henry S.....Monmouth
Starrett, L. F.....Warren
Stetson, Henry.....Auburn
*Stetson, Isaiah.....Bangor
Stilphen, Asbury C.....Gardiner
Stanley, Charles.....Winthrop
Stanley, O. E.....Winthrop
Staples, G. K.....Temple
Strout, S. F.....West Falmouth
Strattard, Mrs. A. B.....Monroe
Sweetser, S. R.....Cumberland Center
*Taylor, Joseph.....Belgrade
Taylor, Miss L. L., (Lakeside) Belgrade
Thomas, William W., Jr.....Portland
Thomas, D. J.....North Auburn
Tilton, William S.....Boston, Mass
True, Davis P.....Leeds Center
True, John W.....New Gloucester
Varney, James A.....The Dalles Oregon
Vickery, James.....Portland
Vickery, John.....Auburn
Wade, Patriek.....Portland
Walker, Charles S.....Peru
Waterman, Willard H.....East Auburn
*Weston, James C.....Bangor
Wharff, Charles S.....Gardiner
Whitney, Edward K.....Harrison
Woodard, Mrs. S. M.....Gardiner
Woodman, George W.....Portland

ANNUAL MEMBERS, 1892.

Abbott, L. F.....Lewiston
Allen, W. H.....Augusta
Arnold, C. A.....Arnold
Bailey, W. G.....Freeport
Bartlett, B. W.....East Dixmont
Bickford, James.....Carmel
Brown, Henry W.....Newburg
Chandler, Lucy A.....Freeport
Cook, Elijah.....Manchester
Doyle, Mamie E.....Woodfords
Dunbar, E. W.....Damariscotta
Dunton, John.....Lewiston
Eastman, A. A.....Dexter
Goddard, Calvin S.....Woodfords
Goddard, Edward H.....Woodfords
Grant, Mrs. Benson.....Lewiston
Harlow, F. L.....Turner
Hawkins, M. P.....Auburn
High School.....Orono
Keith, Walter E.....Winthrop
King, Mrs. Louisa.....South Etna
Larrabee, P. P.....North Sebago
Leech, H. T.....East Monmouth
Luce, Willis A.....South Union
Mansur, A. M.....East Dixmont
Merrow, J. H.....South Smithfield
Munson, W. M.....Orono
Nelson, O. C.....Upper Gloucester
Nutting, James.....Perham
Osgood, Mrs. A. J.....Cumberland Center
Peacock, J. R.....Gardiner
Penley, H. E.....Auburn
Perkins, C. S.....Cross Hill
Plaisted, R. C.....Gardiner
Pulsifer, H. A.....Auburn
Sleeper, Grace N.....Lewiston
Sleeper, L. D. N.....Lewiston
Small, John C.....Cornish
Townsend, Mrs. B. T.....Freeport
Weston, C. M.....Belgrade
Wharff, W. R.....Gardiner
Wheeler, Charles E.....Chesterville
Wright, Fred.....Bath
Wright, L. E.....Woolwich

ANNUAL MEMBERS, 1893.

Allen, W. H.....Augusta
Dudley, J. W.....Castle Hill
Munson, W. M.....Orono
Nelson, O. C.....Upper Gloucester
Wheeler, Joseph B.....Corinth

Annual Statement of the Maine State Pomological Society for the Year Ending Dec. 31, 1892.

RECEIPTS.

Cash received State bounty, 1891	$500 00	
State Agricultural Society	500 00	
Manufacturers' National Bank notes	400 00	
life members	20 00	
annual members	43 00	
Wiscasset Savings Bank	19 63	
interest Farmington National Bank stock	12 00	
Merchants' National Bank stock	6 00	
Dr. Twitchell	10 00	
Balance due Treasurer Dec. 31, 1892	30 31	
		$1,540 94

EXPENDITURES.

Cash paid Secretary's salary	$125 00	
clerk	12 00	
expenses	65 30	
C. S. Pope's "	31 55	
A. E. Andrews' "	24 70	
J. W. True's "	14 00	
H. W. Brown's "	35 60	
A. S. Ricker's "	17 25	
Manufacturers' National Bank notes	300 00	
interest Manufacturers' National Bank notes	1 54	
two shares Merchants' National Bank stock in favor permanent fund	207 60	
dividend Wiscasset Savings Bank	2 37	
Manufacturers' National Bank note	10 77	
Knowlton, McLeary & Co	36 10	
sundries	40 09	
premiums	613 50	
overpaid by Treasurer, 1891	3 57	
		$1,540 94

Financial Condition of Society December 31, 1892.

ASSETS.

Due from State Treasurer, bounty for 1892	$500 00	
Property owned by the Society, estimated	150 00	
Permanent fund, Farmington National Bank stock	400 00	
Merchants' National Bank stock	200 00	
Wiscasset Savings Bank	115 09	
		$1,365 09

LIABILITIES.

Due Manufacturers' National Bank	$350 00	
Treasurer (overpaid)	30 31	
		$380 31

Permanent Fund.

CREDIT.

By fees of 109 life members to December 31, 1892	$1,090 00	$1,090 00

DEBIT.

To deposit in Wiscasset Savings Bank	$115 09	
Farmington National Bank stock	400 00	
Merchants' National Bank stock, Gardiner	200 00	
balance due permanent fund	374 91	
		$1,090 00

A. S. RICKER, *Treasurer.*

Turner, January 2, 1893.

Maine State Pomological Society.

Report of the Twentieth Annual Exhibition held in Lewiston, September 6, 7, 8 and 9, 1892.

Our annual exhibition was held in Lewiston September 6-9, 1892. It was held in connection with the annual show and fair of the Maine State Agricultural Society, and upon the same terms as in former years. There is, perhaps, only one criticism that can be justly passed upon this arrangement, and that is the early date at which the fair is held. Many of our best fruits cannot be shown to advantage, as they are immature, poorly colored, and only partially grown at that time. To show these fruits to the best advantage the exhibition should be held not earlier than the fifteenth of October. It would not be practicable to hold a separate exhibition, and we see no way in which the present plan can be very much improved. There is one advantage, however, the earliness of the fair secures a large exhibition of open-air flowers and plants that could not be shown after the frosts.

The entire third floor of the hall was given to our Society, and the officers of the Agricultural Society expressed themselves as well pleased with the manner in which the hall was filled. For the purpose of making the hall as attractive as possible, the flowers were scattered about the hall. There were some disadvantages in this arrangement, as the specimens could not be so readily compared by the judges. As a matter of convenience it may be better to have one or two of the wings devoted to plants and flowers. The exhibition of fruit was very large, and among those who were present to examine them were several buyers who have since bought large quantities of Maine fruit for their customers. As already

hinted at, the late winter varieties were too green to be shown at their best, but the autumn fruits were large, well colored and handsome. One thing was very noticeable in the exhibition of fruit and that is the increased interest in the winter varieties.

A new and attractive feature of the exhibition was the display of plants made by school children of Lewiston and Auburn. The plants were arranged around the elevator shaft and the stairway leading to the cupola. By request of Mr. Gilbert, the secretary prepared the following summary of the window garden department for publication in the Maine Farmer. This summary is as follows:

Origin. As a part of a horticultural exhibition, or horticultural work, the plan originated, we think, with Mrs. H. L. T. Walcott, of the Massachusetts Horticultural Society. The committee in that society who have had special charge of the work were Mrs. Walcott and Mr. M. B. Faxon. It has outgrown the limits to which it was first confined, and now several hundred dollars are expended in this work and several exhibitions held. Secretary Knowlton of the Pomological Society first called the attention of the society to the subject of window gardening for the children. Interest was shown in the matter, which was finally referred by the executive committee to President Pope and Secretary Knowlton to work up for the fair.

Object. Too little attention is given to the study of plant life, and it is believed that the care of a plant for a few months by a child will teach the child something of interest about the plant, and he will learn something about the plant, how it grows and what makes it grow. A few things learned of one plant will encourage the child to study other plants, and in the end interest him in all that grows on the farm or in the garden.

Medium. Dr. Twitchell gave the society $10 to be used for premiums. L. F. Abbott gave for the same purpose ten annual subscriptions to *Vick's Magazine*, and D. H. Knowlton & Co. for the same purpose presented twenty annual subscriptions to their school papers. President Pope and L. F. Abbott also presented potted plants, and other plants were purchased and distributed to the children, who were expected to care for the plants, etc. To all who returned their plants, free tickets were furnished by the Agricultural Society, admitting to the park one day, Thursday. The children carried their plants to one of the school houses at the appointed time, received their tickets, and the plants were taken to

the fair grounds, placed on exhibition, and later returned to the school building.

Results. About 350 plants were exhibited at the fair. They were arranged on receding shelves on three sides of the elevator shaft, and about the stairway leading to the observatory. About 350 out of 450 plants were placed on exhibition by the children, and they formed a very attractive feature in the floral display, and were admired by the public. The children showed a deep interest in the plants, and many of them were enthusiastic over their success in cultivating. They have also learned some things they will never forget; better still, this care of the plants has taught them to learn much of other plants. The general plan has proved so successful it is hoped the society may be able to continue this line of work in the future. It is also hoped that other societies may give some features of this work a fair trial in the future. Premiums were awarded the best plants in each class.

It is hoped the executive committee may see the way clear to continue the department next year, but there is considerable expense connected with it. The scope of the work should be extended, so that the plants should all be named before they are given out to the children, with the idea in view that the child will learn more about the plant if it is some particular species than if it is simply a geranium without name. A few more plants should be furnished by some one, and the premiums should be paid to the children at once, as delay with them is a cause of much anxiety.

It is a cause of regret to the writer that so little interest is shown in competing for the botanical premiums offered by the society. For the premium offered to high schools there was only one competitor, and that was the Orono High School. It is gratifying, however, to note that this collection was an excellent one, and we take pleasure in making a public recognition of its merit. With the increased interest in introducing the study of agriculture in the schools we are disappointed in not having the efforts of the society in this direction more generally appreciated.

The officers have been aiming at a closer following of the rules, believing that the interests of all will be best subserved thereby. There are several rules that ought to be changed or enforced, and it is the intention of the committee to follow them this year.

It is pleasant to note that there were no complaints made after the premiums were publicly announced.

Premiums were awarded as follows:

For Apples—Collections	$190 50		
Specials	41 00		
Single plates	55 00		
		$286	50
For Pears—Collections	$23 00		
Specials	10 00		
Single plates	25 50		
		58	50
For Plums—Collections	$10 00		
Single plates	23 00		
		33	00
For Grapes		5	00
For miscellaneous articles		43	50
For Flowers		187	00
Total premiums awarded		$613	50

List of Premiums Awarded at the Twentieth Annual Exhibition, 1892.

APPLES—General Collections.

Best general exhibition of apples grown by the exhibitor in any part of the State: S. H. Dawes, Harrison, $15; Miss L. L. Taylor, Lakeside, $10.

Best exhibition of apples grown by exhibitor, to consist entirely of varieties *not named* in the society's premium list: Alonzo Butler, Union, $5; C. H. George, Hebron, $3.

COUNTY EXHIBITIONS.

Best general exhibition of apples grown by the exhibitor in Androscoggin county: John Dunton, Lewiston, $8; D. J. Briggs, South Turner, $6.

For same in Aroostook county: James Nutting, Perham, $8.

For same in Cumberland county: S. H. Dawes, $8; J. W. True, New Gloucester, $6.

For same in Franklin county: E. F. Purington, West Farmington, $8; M. C. Hobbs, West Farmington, $6.

For same in Kennebec county: C. I. Perley, Cross Hill, $8; W. R. Wharff, Gardiner, $6.

For same in Knox county: Alonzo Butler, Union, $8; Willis A. Luce, South Union, $6.

For same from Lincoln county: E. W. Dunbar, Damariscotta, $8.

For same from Oxford county: C. H. George, $8; Lemuel Gurney, Hebron, $6.

For same from Penobscot county: C. A. Arnold, Arnold, $8; E. H. Kenniston, Arnold, $6.

For same from Sagadahoc county: Fred Wright, Bath, $8; L. E. Wright, Woolwich, $6.

For same from Somerset county: J. S. Hoxie, North Fairfield, $8; J. H. Merrow, South Smithfield, $6.

For same from Waldo county: B. W. Bartlett, East Dixmont, $8; A. M. Mansur, East Dixmont, $6.

CRAB APPLES.

For best collection crab apples: C. A. Arnold, $1; E. H. Kenniston, 50c.

SPECIAL PREMIUMS.

For best dish of Baldwins: S. H. Dawes, $5; C. I. Perley, $3.

Gravenstein: A. S. Ricker, Turner, $3; Chas. S. Pope, Manchester, $2.

Northern Spy: S. H. Dawes, $3; S. R Sweetser, Cumberland Center, $2.

Rhode Island Greenings: A. R. King, North Monmouth, $5; Lemuel Gurney, $3.

Roxbury Russets: C. I. Perley, $3; Miss Louisa King, South Etna, $2.

Tompkins King: H. G. Fairbanks, North Monmouth, $3; Alonzo Butler, $2.

Yellow Bellflower: R. H. Gardiner, Gardiner, $3; James Bickford, Carmel, $2.

SINGLE VARIETIES.

Alexander: Grace M. Sleeper, Lewiston, $1; D. S. Thomas, North Auburn, 50c.

American Golden Russet: Walter E. Keith, Winthrop, $1; A. P. Ring, Richmond Corner, 50c.

Ben Davis: S. R. Sweetser, $1; C. I. Perley, 50c.

Deane: Simeon L. Farwell, Cumberland Center, $1; E. F Purington, 50c.

Duchess of Oldenburg: S. H. Dawes, $1; Walter E. Keith, 50c.

Early Harvest: J. S. Hoxie, $1; Mrs. A. J. Osgood, Cumberland Center, 50c.

Fallawater: J. S. Hoxie, $1; Charles S. Pope, 50c.

Fall Harvey: C. H. George, $1; M. C. Hobbs, 50c.

Fameuse: C. H. George, $1; E. F. Purington, 50c.

Garden Royal: S. H. Dawes, $1; Walter E. Keith, 50c.

Hubbardston Nonsuch: T. M. Lombard, Auburn, $1; H. T. Leech, E. Monmouth, 50c.

Jewett's Fine Red: T. M. Lombard, $1; S. H. Dawes, 50c.
King Sweeting: E. F. Purington, $1; C. I. Perley, 50c.
Large Yellow Bough: S. H. Dawes, $1; Grace M. Sleeper, 50c.
McIntosh Red: C. H. George, $1; J. S. Hoxie, 50c.
Milding: C. I. Perley, $1.
Mother: Miss L. L. Taylor, $1; Mrs. A. J. Osgood, 50c.
Munson Sweet: E. F. Purington, $1; S. R Sweetser, 50c.
Peck's Pleasant: Mrs. A. J. Osgood, $1; R. H. Gardiner, 50c.
Pomme Royale: Charles S. Pope, $1; C. H. George, 50c.
Porter: E. F. Purington, $1; Willis A. Luce, 50c.
Pound Sweet: S. H. Dawes, $1; C. I. Perley, 50c.
Primate: J. S. Hoxie, $1; E. F. Purington, 50c.
Pumpkin Sweet: E. F. Purington, $1.
Red Astrachan: Herman Corbett, Farmington, $1; H. T. Leech, 50c.
Red Canada: A. R. King, $1; H. G. Fairbanks, 50c.
Rolfe: S. R. Sweetser, $1; A. A. Eastman, Dexter, 50c.
Russell: D. C. Averill, Temple, $1; Herman Corbett, 50c.
Somerset: C. M. Weston, Belgrade, $1; Miss L. L. Taylor, 50c.
Starkey: C. I. Perley, $1; J. S. Hoxie, 50c.
Talman's Sweet: D. S. Thomas, $1; E. F. Purington, 50c.
Tetofsky: M. C. Hobbs, $1; S. H. Dawes, 50c.
Wagener: T. M. Lombard, $1; J. S. Hoxie, 50c.
Wealthy: S. R. Sweetser, $1; J. W. True, 50c.
William's Favorite: Miss L. L. Taylor, $1; E. F Purington, 50c.
Winthrop Greening: A. R. King, $1; H. G. Fairbanks, 50c.
Yellow Transparent: M. C. Hobbs, $1; C. I. Perley, 50c.

PEARS—General Exhibitions.

For best general exhibition of pears: S. H. Dawes, $10; C. I. Perley, $8; D. P. True, Leeds Center, $5.

SINGLE VARIETIES.

Clapp's Favorite: A. S. Ricker, $3; D. J. Briggs, $2.
Bartlett: S. H. Dawes, $3; Walter E. Keith, $2.
Belle Lucrative: J. S. Hoxie, $1; Alonzo Butler, 50c.
Beurre d'Anjou: Thurston M. Lombard, $1; C. I. Perley, 50c.
Beurre Hardy: R. H. Gardiner, $1.
Beurre Superfin: S. H. Dawes, $1; D. P. True, 50c.

Beurre Clarigeau: G. N. Prescott, E. Monmouth, $1; C. M. Weston, 50c.

Beurre Diel: C. M. Weston, $1.

Buffum: D. P. True, $1; Walter E. Keith, 50c.

Doyenne Boussock: S. H. Dawes, $1; C. I. Perley, 50c.

Duchesse d'Angouleme: S. H. Dawes, $1; Alonzo Butler, 50c.

Eastern Belle: J. S. Hoxie, $1.

Glout Morceau: D. J. Briggs, $1; C. I. Perley, 50c.

Goodale: C. M. Weston, $1; C. I. Perley. 50c.

Howell: C. I. Perley, $1; J. S. Hoxie, 50c.

Lawrence: I. V. McKinney, Auburn, $1; Walter E. Keith, 50c.

Louise Bonne de Jersey: C. H. George, $1; S. H. Dawes, 50c.

Nickerson: Miss L. L. Taylor, $1; C. M. Weston, 50c.

Seckel: D. J. Briggs, $1; C. I. Perley, 50c.

Sheldon: Walter E. Keith, $1; S. H. Dawes, 50c.

GRAPES—General Exhibitions.

For best collection of air-grown grapes: S. H. Dawes, $3; Charles S. Perkins, Cross Hill, $2.

PLUMS—General Exhibitions.

For best general exhibition plums: S. H. Dawes, $6; Willis A. Luce, $4.

SINGLE VARIETIES.

Bavay's Green Gage: Willis A. Luce, $1; E. F. Purington, $50c.

Bradshaw: Lemuel Gurney, $1; T. M. Lombard, 50c.

Coe's Golden Drop: S. H. Dawes, $1; C. H. George, 50c.

Green Gage: D. H. Knowlton, Farmington, $1; M. P. Hawkins, Auburn, 50c.

Prince's Imperial Gage: T. M. Lombard, $1; D. P. True, 50c.

Red Gage: E. F. Purington, $1; R. H. Gardiner, 50c.

Guii: E. W. Dunbar, $1; M. P. Hawkins, 50c.

Jefferson: J. W. True, $1.

Lawrence: C. H. George, $1; E. F. Purington, 50c.

Lombard: J. S. Hoxie, $1; S. H. Dawes, 50c.

Magnum Bonum: John Dunton, $1; M. P. Hawkins, 50c.

McLaughlin: R. H. Gardiner, $1; Willis A. Luce, 50c.

Moore's Arctic: H. T. Leech, $1; J. S. Hoxie, 50c.
Niagara: S. H. Dawes, $1.
Smith's Orleans: T. M. Lombard, $1.
Yellow Egg: J. W. True, $1; John Dunton, 50c.
Purple Damson (Gratuity): J. W. True, 50c.

MISCELLANEOUS ARTICLES—Canned Fruits, Preserves, etc.

Peaches: S H. Dawes, $2.
Peck Cultivated Cranberries: I. T. Waterman & Son, East Auburn, $2.
Orange tree in fruit: H. E. Penley, Auburn, $1.
Banana: H E. Penley, Auburn, $1;
Collection Canned Fruits, etc: Mrs. Annie S. Corbett, Farmington, $8; Mrs. Benson Grant, Lewiston, $5.
Canned Blackberries: Mrs. Annie S. Corbett, 50c.; Mrs. Frank P. Carr, Topsham, 25c.
Canned Blueberries: Mrs. Frank P. Carr, 50c.; Mrs. Francis Hoyt, Winthrop, 25c.
Canned Cherries: Mrs. E. F. Purington, West Farmington, 50c.
Canned Gooseberries: A. A. Eastman, 50c.; Mrs. Annie S. Corbett, 25c.
Canned Peaches: Mrs. Benson Grant, 50c.; Mrs. Francis Hoyt, 25c.
Canned Pears: M. Lela Averill, Temple, 50c.; Mrs. Frank P. Carr, 25c.
Canned Plums: A. A. Eastman, 50c.; Mrs. Benson Grant, 25c.
Canned Quinces: Mrs. Francis Hoyt, 50c.; Mrs. Benson Grant, 25c.
Canned Raspberries: A. A. Eastman, 50c.; Mrs. Francis Hoyt, 25c.
Canned Strawberries: Mrs. Annie S. Corbett, 50c.; Mrs. Francis Hoyt, 25c.
Canned Tomatoes: Mrs. Francis Hoyt, 50c.
Preserved Apples: Mrs. E. F. Purington, 50c.; Miss E. B. Butler, Union, 25c.
Preserved Currants: Mrs. Francis Hoyt, 50c.; Mrs. Annie S. Corbett, 25c.

Preserved Cherries: Miss E. B. Butler, 50c.; Mrs. Francis Hoyt, 25c.

Preserved Pears: Mrs. D. S. Thomas, North Auburn, 50c.; Mrs. Annie S. Corbett, 25c.

Preserved Plums: Mrs. Francis Hoyt, 50c.; Mrs. Annie S. Corbett, 25c.

Preserved Quinces: Mrs. Francis Hoyt, 50c.; Mrs. Annie S. Corbett, 25c.

Preserved Raspberries: Miss E. B. Butler, 50c.; Mrs. Francis Hoyt, 25c.

Preserved Strawberries: Mrs. Francis Hoyt, 50c.; Mrs. Annie S. Corbett, 25c.

Assorted Pickles: Mabel E. Grover, Bean's Corner, 50c.; Mrs. Benson Grant, 25c.

Tomato Catsup: Mrs. Francis Hoyt, 50c.

Best Collection Apple Jellies: Mrs. Benson Grant, $2; Mrs. D. S. Thomas, $1.

Apple Jelly: Mrs. D. S. Thomas, 50c.; Mrs. Francis Hoyt, 25c.

Currant Jelly: Mrs. L. F. Abbott, Lewiston, 50c; Mrs. Benson Grant, 25c.

Grape Jelly: Miss E. B. Butler, 50c.; Mrs. Francis Hoyt, 25c.

Quince Jelly: Mrs. Francis Hoyt, 50c.; Mrs. Benson Grant, 25c.

Raspberry Jelly: Mrs. Benson Grant, 50c.; Mrs. Francis Hoyt, 25c.

Rhubarb Jelly: Mrs. L. F. Abbott, 50c.; Mrs. Francis Hoyt, 25c.

Strawberry Jelly: Mrs. L. F. Abbott, 50c.; Mrs. Annie S. Corbett, 25c.

Maple Syrup: Charles Fletcher, Augusta, 50c.; Lemuel Gurney, 25c.

Maple Sugar (gratuity): Lemuel Gurney, 50c.

CUT FLOWERS.

For best display of cut flowers: Mrs. Charles Stanley, Winthrop, $10; Mrs. B. T. Townsend, Freeport, $8; Charles S. Walker, Peru, $5.

Exhibition of Roses: John Burr, Freeport, $5.

Dahlias: Nellie A. Day, South Turner, $2; Mrs. Charles Stanley, $1.

Chinese Pinks: Mrs. B. T. Townsend, $1; Mrs. Charles Stanley, 50c.

Asters: Charles S. Walker, $1; Mrs. B. T. Townsend, 50c.

Pansies: Charles S. Walker, $1; Mrs. D. H. Knowlton, Farmington, 50c.

Zinnias: Mrs. Francis Hoyt, $1; Mrs. Charles Stanley, 50c.

Phlox Drummondii: Mrs. Charles Stanley, $1; Mrs. G. K. Staples, Temple, 50c.

Stocks: Mrs. G. K. Staples, $1.

Balsams: Mrs. Charles Stanley, $1; Mrs. Francis Hoyt, 50c.

Petunias: Mrs. Charles Stanley, $1; Mrs. D. H. Knowlton, 50c.

Gladioli: Lucy A. Chandler, Freeport, $2; W. G. Bailey, Freeport, $1.

Verbenas: Mrs. Francis Hoyt, $1; Mrs. Charles Stanley, 50c.

Calendulas (gratuity): E. C. Pope, Manchester, 50c.

Vase of cut flowers (amateur): Mrs. Annie S. Corbett, $3; Mrs. Francis Hoyt, $2; Mrs. Charles Stanley, $1.

Best twelve button-hole bouquets: John Burr, $2; Mrs. G. A. Keist, 335 Minot avenue, Auburn, $1.

Floral design (professional): C. S. Goddard & Son, Woodfords, $8.

Floral design (amateur): Mrs. Charles Stanley, $5; Mrs. Lizzie M. Walker, Peru, $3.

Floral wreath: C. S. Goddard & Son, $2; Lucy B. Burr, Freeport, $1.

Dish of cut flowers: Mrs. Francis Hoyt, $2; Mrs. Anthony Cummings, Auburn, $1.

Basket of cut flowers: C. S. Goddard & Son, $2; Mrs. Francis Hoyt, $1.

Artistic Exhibition of everlasting flowers: Mrs. Charles Stanley, $1.

GREENHOUSE AND POT PLANTS.

Exhibition greenhouse plants: W. G. Bailey, $15; C. S. Goddard & Son, $10; John Burr, $8; Charles S. Walker, $8.

Exhibition pot plants: Lucy A. Chandler, $10; Mrs. Anthony Cummings, $8.

Ferns: John Burr, $3.

Geraniums: John Burr, $2.

Begonias: W. G. Bailey, $2; John Burr, $1.

Coleus: Charles S. Walker, $2; John Burr, $1.

Gloxinias: Charles S. Walker, $2.

Dracæna: W. G. Bailey, 50c; John Burr, 25c.

Double Geranium: Mrs. Anthony Cummings, 50c.

Single Geranium: Linnie Varnum, Auburn, 50c.; Lizzie Dagneau, Auburn, 25c.

Salvia Splendens: John Burr, 50c.

Foliage Begonia: John Burr, 50c.; W. G. Bailey, 25c.

Flowering Begonia: W. G. Bailey, 50c.; Charles S. Walker, 25c.

Coleus: S. H. Dawes, 50c.; Charles S. Walker, 25c.

Fuchsia: W. G. Bailey, 50c.

Carnation: Lucy A. Chandler, 50c.; W. G. Bailey, 25c.

Ever-Blooming Rose: Mrs. Anthony Cummings, $1.

Single pot plant: S. H. Dawes, $1.

Climbing plant on trellis: John Burr, $2; Mrs. Anthony Cummings, $1.

SPECIAL PREMIUMS.

Cut wild flowers: Mrs. C. E. Waterman, East Auburn, $3.

Pressed wild flowers: Mamie E. Doyle, Woodfords, $2.

Pressed wild flowers collected by High School: Orono High School, Orono, Household Microscope, costing $6.

WINDOW GARDEN DEPARTMENT.

First premiums of 35 cents each were awarded to the following children for geraniums: Winnifred Thompson, Eddie Plummer, Grace Woods, Emma Armstrong, Charles Eldredge, Irwin Norcross, Harry Goss, Arthur Hayes, Lena Jones, Cochraine Cartwright, Herbert LaRoe, Lola McQuestion, Willie Whittum, Florence Whittum, Marion Ames, Lewiston; Ethel Payson, Paul Preble, Percy Haskell, Blanche Crafts, Letitia Frost, Auburn.

Coleus: Louise Bradstreet, Ernest Gould, Lewiston; Charles Carter, Donald Garcelon, Harold Davis, Fred Dorman, Arthur Thompson, Auburn.

Fuchsias: Carrie Fickett, Violet Reynolds, Marion Owen, Lewiston.

Vick's Magazine was sent for one year as a premium to each of the following, for geraniums:

Gracie Mills, Shirley White, Lewiston; Maud Preble, Guy Fitz, Inez O. Decker, Josie Pratt, Auburn.

For Fuchsias: Clara Pingree, Hattie Dresser, Lewiston.

For Coleus: Maggie Doyle, Lewiston; Mary Roak, Bertha Cushman, Auburn.

The School World was sent for one year as a premium to each of the following:

For geraniums: Emma Reichel, Grace Evans, Ida Epstein, Lillian Soule, Arthur McGibbon, Ida Andrews, Florence Cash, William Davis, Lewiston; Fannie Harlow, Annie Mullary, George Tainter, Alice Chase, Eva Larrabee, Theresa Jordan, Annie Curtis, Cora Gould, Auburn.

For Fuchsias: Daisy Young, Auburn.

For Coleus: Madge Lane, Harold Reynolds, Arthur Sherman, Lewiston; Bertha Woodbury, Auburn.

For the premiums in the Window Garden Department, $10 was contributed by Dr. Geo. M. Twitchell, *Vick's Magazine* was presented by L. F. Abbott, of the *Lewiston Journal*, and the *School Worlds*, by D. H. Knowlton & Co., publishers, Farmington.

Business Transactions.

Annual Meeting.

September 7, 1892. Meeting of the society held in Park Hall, Lewiston, at 6.30 o'clock P. M. Officers for 1893 were elected. See page 12. The committee, to whom was referred the resolution of Mr. Wheeler, presented at the last winter meeting, was granted further time, to report at winter meeting.

The Secretary read the following letter:

"Office of Executive Commissioner,
Portland, August 27, 1892.

Mr. D. H. Knowlton,

Secretary Maine State Pomological Society.

Dear Sir:—Our Board finally appropriated $1,000.00 to be expended upon the pomological exhibit. Of course some of the appropriations may lapse and thus increase this one; but the sum of $1,000.00 is all we are sure of. I write to ask if your Society will undertake to get up an exhibit, or, in other words, get up as good an exhibit as you can with this money, and if so, upon what terms? Very truly yours,

C. P. Mattocks (P.)"

On motion of Mr. Briggs, of Turner, the matter was referred to the Executive Committee for such action as the interests of the Society may require.

Winter Meeting, January 17th and 18th, 1893.

By previous arrangement with Hon. B. Walker McKeen, Secretary of the State Board of Agriculture, a programme for a union meeting was prepared and agreed upon.

Assembled in Meonian Hall, Tuesday, January, 17th. at 10 o'clock, A. M. The temperature of the hall was so low that no meetings were held there during the session. The forenoon meeting was adjourned to Hotel North, and the other meetings were held in the hall of Highland Lodge, A. O. U. W. who kindly tendered our Society the use of the same. At Hotel North President Pope called the meeting to order.

In the absence of A. S. Ricker, treasurer for 1892, his report was presented by Charles E. Wheeler, the treasurer-elect for the year 1893. The report was accepted.

Secretary Knowlton, in behalf of the committee "to consider the advisability of petitioning the next [present] Legislature for an increased appropriation for the society," reported that "in view of the facts presented your committee are convinced that it is advisable at this time to ask the Legislature to increase the annual appropriation for the society."

The committee recommend that the Legislature be asked to amend the act of incorporation by changing the words "five hundred dollars" to "one thousand dollars," in Section 2 of said act of incorporation, so that said section, when amended, shall read as follows:

Sec. 2. Said Society shall have all the rights, privileges, and powers conferred by the laws of this State upon county and local agricultural societies, and shall be subject to all liabilities imposed by existing laws upon societies, so far as the same are applicable to the objects of this Society; but the bounty to be paid by the State to said Society shall not exceed the sum of one thousand dollars in one year.

Voted, That the committee who have been investigating the advisability of asking the legislature for additional appropriation for the uses of this Society be instructed to present the matter to the legislature in any form that their judgment may determine; that to this end they confer with the State Board of Agriculture and solicit their co-operation in gaining the desired result.

[Memorandum. Before leaving Augusta the committee conferred with the Board of Agriculture, put the matter in proper form and placed the papers in the hands of the Hon. Edward Wiggin, chairman of the committee on agriculture, the Board of Agriculture co-operating. Some time later a favorable report was made on the matter, and the bill was passed by the Legislature without dissent, and was approved by the Governor.]

The Secretary reported the resignation of Mr. A. E. Andrews as a member of the executive committee. It was voted to accept the same and to proceed to the election of his successor.

Balloted and made choice of Willis A. Luce of South Union.

The president appointed the following committee to examine the fruit and flowers on exhibition: Charles E. Wheeler, W. A. Luce and S. H. Dawes.

The committee reported as follows:

"Mr. President:—The committee which you appointed to report on the exhibit of fruit have attended to that duty and report, with much pride, that the exhibit this year we believe to be the best for many years and it may be the best that has been shown at any of the winter meetings. We find in all 100 plates, shown by thirteen exhibitors.

From the State College forcing-house, Prof. Munson shows *results* of the work being done there.

From the orchardists that are attracting especial attention is Dudley's Winter, an apple originating from a Duchess seed fertilized by a Hyslop Crab. Mr. J. W. Dudley, Castle Hill, is the exhibitor.

The Stark, which has brought out some notes and letters, of late, in the *Maine Farmer*, is found on the tables in fine form from the orchard of J. Libby, Grey.

Three plates of King are shown, and from those of J. W. True and J. Pope & Son your committee do not desire the honor of deciding which is best.

Especial mention is called to the plates of Fallawater, Baldwin, Minister, Mother and Nodhead exhibited by J. Pope & Son.

Among J. W. True's exhibit is an extra fine dozen of Beurre d'Anjou pears. The Ben Davis, R. I. Greening and Nodhead are fine specimens of their kinds.

D. P. True shows Lawrence pears and Angers Quince.

Peck's Pleasant, from S. R. Sweetser are extra fine. E. A. Lapham, Pittston, fourteen plates; J. Pope & Son, Manchester, twelve plates; S. R. Sweetser, Cumberland, eight plates; J. W. True, New Gloucester, six plates; S. R. Lapham, Pittston, five plates; D. P. True, Leeds, two plates; S. R. Clark, China, two plates; James Nutting, Perham, two plates.

Flowers from different florists do much to make the tables pleasing to the eye, and we trust that in the years to come this part of our work may receive far greater attention.

Your executive committee having in charge the World's Fair exhibit shows some fine fruit taken from the collection which is now in cold storage awaiting the opening of the Columbian Exposition."

The following resolutions were presented and passed by unanimous vote:

Whereas, There exist between the executive committee of the Maine State Pomological Society and the State Board of Agriculture very pleasant relations and a mutual desire to help forward the kindred work of every branch of agriculture,

Resolved, That we tender to that Board our thanks and pledge them our support.

Resolved, That we further extend our thanks to B. Walker McKeen, Secretary of the Board, for his aid at this meeting.

Resolved, That this Society hereby acknowledges the courtesies extended by the railroad and hotels to its members, and to the Maine Central Railroad extends its thanks for excursion rates, and to Hotel North and Cony House for reduced rates of entertainment.

Resolved, That the thanks of this society be and hereby are extended to the newspapers for the publication of our notices and for the excellent reports of our meetings.

In connection with the making of awards at the World's Fair, after discussion, the following resolve was passed:

That it is the judgment of Maine fruit growers that the late-keeping fruits grown in the northern belt should be examined near the opening of the Fair, as it is at this season only that these varie-

ties can be shown in their greatest perfection, and that for this purpose 1892 apples should be shown; that the secretary be instructed to submit this resolve to the consideration of the proper authorities.

Meetings of Executive Committee

February 19, 1892. The committee met at the West End Hotel, Portland, as per adjournment, and proceeded to business, President Pope in the chair.

The premium list for the next fair was discussed and revised.

The expediency of giving plants to children, and offering premiums for the best ones shown at our fair, was discussed and referred to President Pope and the Secretary. The Agricultural Society co-operating, plants were distributed among the children of Lewiston and Auburn, and premiums were offered. [See list of premiums awarded.]

April 11. The executive committee authorized and instructed the Treasurer to purchase two shares ($100 each) of the Merchants' National Bank of Gardiner, at a cost of $207.60. The same to be held to the credit of the permanent fund.

September 9, the committee met at Lewiston. In the World's Fair matter, Messrs Knowlton, Andrews and Brown were authorized to confer with the executive commissioner and take such action as their judgment might determine.

The committee chosen for the purpose thereupon took the train for Portland where, by previous arrangement, Gen. Mattocks was expected to meet them. The executive commissioner did not appear, but under date of September 12, 1892, the following was received from Gen. Mattocks:

"While away Friday my clerk tried to reach me by wire but was unable to as I was out of reach of telegraph, although my clerk supposed I was within reach, and never knew to the contrary until after Friday night, so I was in utter ignorance of your movements as well as the telegram. Now I am exceedingly sorry I failed to see you, but hope we may have a favorable response as to your society's taking hold of the Chicago matter.

Very truly yours,
C. P. Mattocks,
Executive Commissioner.

Portland, September 30. In response to the call of the Secretary, each member of the executive committee was present. The meeting being called to order, the Secretary read the following

from C. P. Mattocks, Executive Commissioner, under date of September 22:

DEAR SIR: — I inclose copy of vote of our executive committee. I am ready to contract with anyone you may designate to collect the pomological exhibit, with the understanding that we are to use but $1,000. However, if you think advisable, I think I am safe in saying that our Board will do what we can, with your help, to get an additional $500 from the Legislature. Of course, if I contract with a man he will be supposed to come under the reasonable discipline of an employee, but we look to you to help guide him in his work. Yours very truly,

C. P. MATTOCKS,
Executive Commissioner.

The Secretary stated that he had invited General Mattocks to be present and with Mr. Fassett he was presented to the committee. After discussing the matter the following vote was taken:

That the executive committee, in behalf of the Society, accept the proposition of the executive commissioner.

Later a contract was executed between the parties on the terms proposed.

Voted, That Messrs. Brown and Andrews of the committee be placed in charge of collecting, preserving and preparing fruit for the exhibition of fruit at the World's Fair.

At this meeting the schedule of premiums awarded was presented and the Treasurer was directed to pay the same.

The Treasurer was authorized to make a loan, not exceeding four hundred dollars, to pay premiums and bills, for a time not to exceed six months.

November 18th. The committee met at Gardiner. Matters connected with the winter meeting were discussed, but no formal action was taken.

Matters connected with the World's Fair were considered and action taken to place in storage the fruit collected, &c.

Later the Executive Committee perfected arrangements for holding the annual winter meeting in Augusta, January 17th and 18th, 1893.

PUBLIC MEETINGS

OF THE

Maine State Pomological Society.

Papers, Discussions, Reports, Etc.

Annual Meeting, Lewiston,

September 8, 1892.

UNION WINTER MEETING, AUGUSTA,

January 17 and 18, 1893.

Public Meetings.

Thursday evening, September 8th, in Park Hall, Lewiston, a convention of Maine fruit growers followed the election of officers. There was a good attendance, though the hall and its surroundings are ill-adapted to such gatherings. We have the idea that the time has now arrived that the people of Maine would be rejoiced to know that the scope of the agricultural fair was extended so as to return, if you please, to the custom of former days, so that along with sight-seeing, the horse trot and the meeting of friends, there may be an intellectual feast in waiting for those who may wish to enjoy it. With this in view and a suitable place in which to gather, meetings for the discussion of rural and domestic affairs, would be largely attended. A few popular speakers under the auspices of the various agricultural organizations would attract to the ground many visitors who now stay at home. Let us introduce among our attractions all the intellectual and moral elements possible. In this way we may hope to purify all the surroundings of the fair, and win to our support many who are now indifferent. We would hold these meetings during the day as well as evening, and by making them attractive many would be glad to attend them.

The general subject for this meeting was "Small Fruits in Maine." It was introduced by President Pope with a talk on their culture, and followed up by Willis A. Luce of South Union on their profits, and by S. H. Dawes of Harrison, on the difficulties of small fruit culture. Discussions followed, in which many joined. Messrs. Smiley of Skowhegan, and G. Parker of Newport furnished excellent music for the occasion.

Just twenty years ago the first meeting of our society gathered in the city of Augusta, since which time more of our winter meetings have been held there; a fine collection of winter apples were in readiness for exhibition by Messrs. Brown and Andrews, the best ever shown in the State; it was determined to ask the legis-

lature for a larger annual stipend; several florists expressed a willingness to exhibit plants and flowers. Under these conditions it was determined to hold our winter meeting in Augusta Secretary McKeen of the Board of Agriculture was in full accord, and a union winter meeting was accordingly arranged. The exercises were of a very high order and the programme was well carried out. It was a special pleasure to our members to meet with Mr. W. A. Taylor of the agricultural department. Besides the papers he read to us, in many ways he was able to render a service to our society that will long be remembered. It will be seen by the programme which follows, that several new topics are presented, among which we may mention "Cranberry Culture," "Plant Breeding," "Study of Plant Life," "Agriculture and Horticulture in the Schools" and "The Apple in Cookery."

PROGRAMME.

Mr. W. A. Taylor, Assistant Pomologist, U. S. Department of Agriculture, will be present during the meetings.

TUESDAY FORENOON, 10 O'CLOCK.

Report of the Treasurer.

Report of Committee to consider the advisability of asking the Legislature to increase the stipend to our Society.

Report of Secretary—A Year in Pomology, D. H. Knowlton.

Anniversary Address—The Society's Record in Pomology, President Chas. S. Pope.

TUESDAY AFTERNOON, 2 O'CLOCK.

Results of Spraying Experiments in 1892, Prof. W. M. Munson, Agricultural Experiment Station.

Benefit Derived from Top-Grafting the Baldwin, Frank Bowman, Eureka.

The Reverse of the Picture, S. T. Cannon, Augusta.

TUESDAY EVENING, 7.30 O'CLOCK.

More Education in Floriculture Necessary to Profitable Enjoyment Therein, Edward H. Goddard, Woodfords.

Floriculture, Mrs. Alonzo Towle, Freedom, N. H.

WEDNESDAY FORENOON, 10 O'CLOCK.

Flowering and Vegetable Plants for the Home Garden,
Charles S. Walker, Peru.

Cranberry Culture,
Rev. N. H. Chamberlain, Monument Beach, Mass.

WEDNESDAY AFTERNOON, 2 O'CLOCK.

Plant Breeding,
Prof. W. H. Munson, Agricultural Experiment Station.

Study of Plant Life in Schools,
Miss H. M. Merrill, First Lady Assistant, Farmington Normal School.

Agriculture and Horticulture in the Schools,
Practical exercises with a class of pupils from the Auburn Schools, conducted by Miss M. L. Wilson, Auburn.

WEDNESDAY EVENING, 7.30 O'CLOCK.

Report of Committees.

The Apple in Cookery,
Miss Anna Barrows, Principal of the School of Domestic Science, Boston.

ORGANIZED HORTICULTURE IN THE STATE OF MAINE.

By D. H. Knowlton, Farmington.

The beginning of things is not easily determined. We may trace the development step by step, but like the mirage on the desert waste, the nearer we approach it the farther it seems to be from us, and at the moment when our search seems to be rewarded the whole disappears from our view. This is as true in pomology as in other things, and here in Maine we are able to mark its progress, while its origin goes back into the dim history of other states and countries. The early settlers in the interior of the state were a hardy, independent class of people, who with their own hands produced their homes and provided them with all the necessaries of life, which now and then were supplemented with some luxuries. The first effort was in the direction of home making and support of the family. At the same time it is narrated that many of the early settlers coming from localities where fruit was grown brought with them seeds of apples and pears. Those were planted and watched over with a sort of paternal interest until the trees bore fruit to reward the planter for his care, and for long years after brought forth fruit to cheer and invigorate succeeding generations. Pear and apple trees, that have outlived a century's winters, mark the site of many an early home.

It may be asked what relation these venerable and sadly neglected trees have to the present condition of fruit culture in the state? Our reply is, they have very much to do with it, for they were the pioneers of fruit culture, the spies if you please that were to gain a knowledge of the newly settled land. Their roots ran deep down into the soil, and their branches floated in the breezes, and in this way they soon bore evidence that soil and climate were favorable for the production of luscious fruits. They tell us as we behold them that nature has provided all the conditions necessary, and that successful fruit growing in Maine only needs the skillful hand of the intelligent husbandman to yield bountiful returns for his labor and care.

THE FIRST ORGANIZATION.

The first attempt at an organization of fruit growers in Maine was made in 1847, when the Maine Pomological and Horticultural

Society began its important career. It was chartered in 1854 and had, as Mr. Sawyer in his first report of the Maine State Pomological Society says, for a "time a direct and powerful influence upon the business of fruit culture in the State. Among its members, or contributors to its exhibitions, were many of the men whose names are recognized as among the most successful fruit growers of the present day, and many equally well known who have deceased. In 1855 it made an exhibition at Gardiner, a most successful and varied exhibition of fruits. It is doubtful if a better show of apples and pears has since been made in the State, or could be at the present day."

THE PRESENT ORGANIZATION.

For some reason unknown to the writer this society gave up its organization shortly after the Gardiner exhibition referred to, and until several years after the close of the war no State organization specially interested in pomology existed in Maine. The State Board of Agriculture recognizing the importance to the State of some organization of the kind, frequently had the matter under consideration, and largely through its influence the present Pomological Society was organized in 1873. The expediency of attempting to effect such an organization was considered by the Board at its meeting in Skowhegan the year before. An "Address to the Fruit Growers of Maine" was prepared by a committee, consisting of Messrs. Z. A. Gilbert, J. A. Varney and A. L. Simpson, and published in the newspapers. In accordance with this address a provisional organization was effected at a subsequent meeting of the Board held in Winthrop, January 17, 1873. The officers there designated were as follows: President, Z. A. Gilbert; Vice Presidents, Geo. W. Woodman and A. L. Simpson: Secretary, George B Sawyer; Corresponding Secretary, J. C. Weston; Treasurer, Chas. S. Pope; Executive Committee with President and Secretary, Samuel Rolfe, James A. Varney and Albert Noyes, with one trustee from each county.

Another committee was chosen to procure an act of incorporation of the Legislature, which was then in session. The Legislature passed the act, and the corporators met in Augusta, March 27, 1873, accepted the act of incorporation and elected as officers of the society those proposed at the Winthrop meeting of the

Board of Agriculture. Thus as an offspring of the Board of Agriculture, the society was first organized, and to its fostering care since, the society owes all the gratitude a child can bestow upon a parent. Co-laborers in the great field of agriculture, they have readily walked shoulder to shoulder, and the work of each has been carried on with the most cordial good wishes of the other.

EXHIBITIONS OF FRUIT AND FLOWERS.

The first exhibition of the society was held the following September, in City Hall, Bangor. The Bangor Horticultural Society gave the society a very cordial welcome, and the exhibition was said to have been one of the best ever held in the State. Some fifteen hundred dishes of fruits were shown. The second annual exhibition was held in City Hall, Portland, by invitation of the Portland Horticultural Society. Among the pleasing features of this exhibition were an address by the Hon. W. W. Thomas, Jr., and a fruit supper under the auspices of the Portland Horticultural Society. The next year the society joined with the State Agricultural Society, and held an exhibition in City Hall, Portland. Two years the society held exhibitions with the Kennebec Agricultural Society in Waterville. Another year in City Hall, Lewiston, and since then in connection with the State Agricultural Society in their exhibition hall in Lewiston. Of these exhibitions many pleasant things were said by the newspapers of the state. It may also be said of these exhibitions that it has been the object of the officers to make them attractive to visitors, educational to the students of pomology, and helpful to exhibitors. Objectionable features have been rigidly excluded and the popularity of the exhibitions has steadily increased. For several years the society was obliged to scale down its premiums rather than burden itself with debt, but in recent years all premiums have been paid in full.

It may be added here that many advantages have followed from holding joint exhibitions, the most important of these is the fact that more people are in attendance than could be expected if we held our exhibitions by ourselves. The fairs are popular and thousands of people from all parts of the State are in attendance daily.

At the first exhibition of the society held in Bangor and at several subsequent exhibitions there were addresses and discussions

upon fruit topics. The first address was by the Hon. Z. A. Gilbert, who was then president of the society, and we think a member of the Board of Agriculture For several years past we have held a public meeting one evening of the fair, at which papers were read and discussions were participated in by those in attendance.

The first winter meeting of the society was held in Augusta the year following the organization of the society. After calling the meeting to order President Gilbert introduced the Hon. S L. Goodale, who delivered an address on the question, "Shall the State of Maine grow her own fruit trees, or buy them from other states?" It is proper to remark at this point that Mr. Goodale was a zealous friend of the farmer, and in fruit matters as well as other agricultural affairs was sound to the core. Discussions followed and other papers were read, and if we may believe the report, which was ably edited by Geo. B. Sawyer, Esq., the first and ablest secretary the society has ever had, the meeting was of a high order and compares favorably with other meetings held by the Society since. Each year since a winter meeting has been held in some part of the State. A two days' programme (and in several instances more than two days) has been carried out, and in each instance, so far as the writer knows, the meetings have awakened great interest in pomological affairs. The programmes at these meetings consisted of papers and discussions upon fruit matters. Some of the papers are of a high order, and as reported in our transactions are not excelled by those given before similar organizations in other states.

A fruit exhibit has formed an attractive feature of these gatherings, and has been closely examined and much enjoyed.

With the exception of two or three years, when the wisdom of the legislature withheld funds, or rather denied the farmers of the State the advantages of an agricultural report, the transactions of this Society have been carefully edited and published for distribution in the State.

SPECIAL MENTION.

Of the original members of the Society it is a pleasure to mention some whose devotion to its interests has had very much to do with establishing it on a firm foundation. Its first president, the Hon. Z. A. Gilbert, of Greene, was at the time of his election a prosperous farmer and a member of the State Board of Agriculture. Later he

became one of the most efficient secretaries the Board ever had, acting in that capacity until the winter of 1892. He has been a firm friend of the Society, and in his official capacity as secretary of the Board, in many ways rendered valuable assistance to the Society and largely increased its usefulness as one of the organized industries of the State.

Of those who have been identified with the Society's work, none have done more or displayed greater fitness and ability than its first secretary, George B. Sawyer, Esq , of Wiscasset. The transactions of the Society during his official term are edited in the most scholarly manner These volumes show how carefully he gathered facts bearing upon the industry of fruit culture in Maine. In carrying out the purposes for which the Society was organized, he unde took many tasks that involved great labor and many sacrifices. The fruit growers of Maine owe him a debt of gratitude, which we fear this generation may never be able to recompense, but the transactions of the Society will bear witness to succeeding generations of the excellence of the service he rendered.

The Honorable Henry Ingalls of Wiscasset was at one time president of the Society, and though in recent years he has not been permitted to meet with us, he has in many ways actively encouraged the cause. He is a member of the Horticultural Committee of the World's Fair Managers, and has actively aided us in bringing before the Board the importance of the fruit industry in the State.

For several years the Hon. Robert H. Gardiner of Gardiner was president of the Society. He was an active member and an exhibitor of some of the finest fruit grown in the State. In September, 1886, having arranged to exhibit his fruit at the fair as usual, but before his fruit was in place, the messenger of death had sealed his lips. A beautiful floral tribute, in the midst of his fruit, with emblems of mourning told the visitors of his death while his remains were being borne to their last resting place. At the winter meeting following, the Hon. Samuel L. Boardman, who was then the efficient secretary of the Society, read a finely written memorial sketch,—a graceful and beautiful tribute from a personal friend. This sketch was published in the Society's Transactions for that year.

There are others whose names are deserving of special mention in this connection, but space and time will not permit; but in clos-

ing this hastily written sketch the writer wishes to call attention to the character of the early work done by the Society. It was above all a work of love for fruit growing, of devotion and loyalty to the State. By fruit growers it had been determined that conditions in Maine were favorable for profitable fruit culture. The first great work was to spread this knowledge before the people. The mediums were well chosen, for at the exhibitions of fruit all could see the real product itself in the most attractive form, and real object lessons the exhibitions have proved, bearing indisputable evidence of the great importance of the fruit industry to the State. The other medium was the public meeting for teaching the *how* of profitable fruit culture. The papers and discussions at these meetings were reported in the press and published in the Transactions of the Society, and thousands have studied the theory and science of fruit culture from them. To do this great work there was enthusiasm enough, but the funds were always short, and even to the present time the only compensation paid to the officers has been a meagre salary to the secretary. The time has been cheerfully given, and the Society has only paid the actual travelling expenses. Nor does this tell all the story, for often the early members when the Society was struggling to pay its bills rather than contract a debt, contributed from their own pockets. They preferred this to having their Society burdened in its youth with a debt. The extent of this aid we shall never know, as there is no complete record of the aid they gave. Rarely in the history of organizations are there such instances of loyalty to the cause.

The extension of fruit culture has been the chief object of the Society. First, it is and has been one of the cardinal principles of the Society that every family that controls an acre of land or even a garden spot should produce an abundance of fruit for home use; and second, that as a profitable industry none in the State pays better. That fruit growing in the State has now become so general is a most gratifying result, but the end is not yet, for there is now constant demand for more knowledge of fruits, how to raise them, how to sell them, and last but by no means least, how to use them to increase the health and happiness of our people.

The Pomological Society has ever been true to the principles on which it was organized and has steadily labored to promote the industry of fruit growing in the State. It has no rivals, but has found friends among kindred societies in the State. This is espe-

cially true of the Bangor Horticultural Society and the Portland Horticultural Society, organizations that have been active factors in promoting the culture of fruits and flowers. Many from these organizations have been identified with the Pomological Society. Dr. James C. Weston of Bangor was the Society's first corresponding secretary. There were others from the Queen City who bore an active part in the early history of the society. Dr. Weston in the Transactions for 1876 contributed a memorial sketch of Albert Noyes and on the pages immediately following was a memorial of himself written by Mr. Sawyer.

THE BENEFIT DERIVED BY TOP-GRAFTING THE BALDWIN.

By Frank Bowman, Eureka.

The Baldwin is the most popular apple grown in Maine, and in commercial importance it heads the list. The tree is wonderful for its productiveness. It is also possessed of a most excellent feature in having a rich, heavy and healthy foliage, which insures a crop of fruit free from scab or rust Although but half-hardy, the Baldwin tree is tenacious of life. Its thick bark protects the sapwood and preserves the dormant buds, for these are observed to spring out and form bearing limbs when there is but little woody substance to build on, thus renewing and prolonging the usefulness of the tree.

The weak point in a Baldwin tree is its soft and spongy wood, the cells of which are ruptured and destroyed by severe freezing. There are in consequence very severe losses in some localities among newly planted Baldwin orchards. The stem or trunk of the young Baldwin tree until of two or three inches in diameter is the first part to show its half-hardy nature.

Now, we cannot change the nature of the tree, but we can in a great measure remedy this most discouraging feature simply by setting hardier sorts and changing them into Baldwins when of suitable size. Of the hardy sorts of stock to graft the Baldwin on the seedling is the best. The seedling tree at 10 or 12 years of age will be possessed of more of the elements of substantial durability than the grafted tree. The limbs are more firmly attached to the body. The roots have extended to a greater distance. This fact

is abundantly substantiated in our nursery practice where we have dug hundreds of large trees, both grafted and seedling, and have observed uniformly a larger and better developed root on the seedling. In explanation of this phenomenon it should be remembered that the growth of the roots of a tree depends upon the character of the top. Some varieties in the nursery, all the conditions of growth, age, fertility, soil, culture, etc., being the same, are always found to have heavier roots than others, and it is observed that this peculiarity is due entirely to the peculiarities in the growth of the tops of those sorts. If the whole top of a tree be removed the roots cease growing entirely. Now, there is a distinctive feature of the seedling tree when young, which we find in the case of the apple, plum and pear, viz: The production of thorns and spurs in profusion. This feature belongs exclusively to the young seedling, and its use is to stimulate the production of roots in the young tree. But with the increased age and size of the tree this feature disappears, for it belongs to a particular period of the tree's life, and when that period is past, the phenomenon cannot be produced again.

A most convincing illustration of the superior hardiness and vigor of the young seedling is seen in nursery rows where the very hardiest grafted varieties are grown side by side with seedlings. It will be found that the seedling suffers the least damage from all those extremes of change so destructive to young trees. Now out of 100 of those seedlings when arrived at maturity not 12 will be found to be any more than ordinarily hardy trees. If, now, scions from the hardiest of those seedlings when they have become mature be used to propagate young trees of their sort, it will be found that the peculiar features of the originals i. e. of the young seedlings, have departed, viz.: The super-abundance of spurs, thorns and the corresponding development of roots. The reason is apparent. We have transferred the assimilative organs of maturity to take the place of those of youth.

Hence nature has bestowed such gifts on the young seedling tree that at eight or ten years of age we have the most perfect tree as regards its makeup for durability that can be produced.

The next important step is the grafting. By grafting on the trunk or splice-grafting on the limbs when small we are depriving ourselves of those gifts that nature has bestowed on the seedling

tree. Grafting out on the limbs will secure early fruitfulness. Seedling apple trees shou'd be allowed to grow until the limbs are large enough to cleft-graft about two feet from the body. Of course, attention should have been paid to shaping the tops a year or two in advance. Now, good, healthy trees will stand grafting the whole of the top at one time, that is, if the limbs are cut one and one-half to two feet from the trunk. The greater part of the suckers should be allowed to grow, as this will give a better ripened scion and spare the tree a too severe shock.

In regard to bearing fruit, the question is often asked: Is there not a loss of time in setting the seedling and top-grafting? I answer that from my observation and experience with both, the top-grafted seedling comes in ahead.

In conclusion, I would say that the benefits to be derived from top-grafting the Baldwin are: With seedlings we can start an orchard at a great deal less expense and we shall have far more and better trees at eight or ten years of age, which is, perhaps, about the best age to top-graft; the limbs are less liable to split down, and the trunk less defective; the roots are better developed; thus securing trees possessing more of the elements of durability and productiveness than are to be found in the root-grafted Baldwin.

DISCUSSION.

Mr. TAYLOR: Whether it is not the custom to plant seedlings as they come in the nursery row, or to select seedlings that have been tested for hardiness? Whether it is the custom to select seed from the trees to start seedlings from?

I think it is a matter of considerable importance in this connection, whether you are breeding hardy stock, or simply taking seed from standard varieties, some of which may produce hardy seedlings and some may not, as they vary in character of hardiness as well as in character of fruit.

I would like to know to what extent Maine orchards are on seedling trunks.

Mr. BOWMAN: I would say here, that the practice in growing nursery trees is to grow one year's seedlings and take these trees up in the fall or in the spring and put them in nursery rows. Those not good, inferior in growth or diseased, we remove as fast as we notice a tree that is defective. In this way we get the best trees to put upon the market.

They are not all of equal hardiness. We grow them four or five years in the nursery.

Mr. T.: Do you select seed from seedlings known to be hardy, or do you sow your seed selected miscellaneously? Most of us understand just how they are raised in the nursery from seed planted, but is that seed selected from trees known to be hardy, or from a miscellaneous lot?

Mr. B.: We usually select our seed from our natural fruit. We consider that the seeds are better from natural fruit than from grafted trees. We select the very best apples. When we carry a lot of the best natural fruit to the cider mill, we select the best and smoothest natural fruit.

Ques. What proportion of the trees come up to be of marketable size; how much are they thinned out?

Ans. Perhaps we lose twenty or twenty-five per cent. They vary one year with another, some years we lose more than others; perhaps twenty-five per cent the average loss in the trees.

Mr. T. I would like to ask to what extent has been tried the practice of double working of the same varieties, as those that will not stand winters always, on trees that have been grown for the purpose of forming a hardy trunk on a seedling root? That practice has become quite prevalent in Wisconsin and Minnesota. The stock they are using is the Siberian and Virginia crab; they unite readily with the apple. That has become a valuable stock. They take common nursery seedlings grown from their hardiest varieties of apples and root graft with the Virginia or Concord crab and grow them vigorously three or four years, then set them out and top-graft immediately. It has been practiced in Western Minnesota and is apparently successful. This is double working to secure a uniform plant; establish hardy trunks. It sends out roots above the union of the scions. I would like to know if that has been tried in Maine?

Ans. We have never made a practice of doing that enough to make a test of the matter. I do not see any benefit in doing so, because I think the seedling tree is better than any grafted tree for the first two years, and the root is improved. The top of the tree affects the root, but the root does not affect the top.

Mr. T.: It secures a uniformity of growth of the orchard. The Concord trunk has been produced by using the root to start with, then grafting the trunk so it sends out roots from the scion and

secures a uniform stem. A hardy seedling stalk is without doubt the best stalk that can be secured.

Mr. Pope: I will say that we have not tested any length of time this double working. It has been our practice to set seedlings until within a few years. We find, no matter where we get them, they are not uniform. Frequently the tree does not have that vigor it should. We always remove it and put in a better one. A few years ago we tried in place of setting seedlings to set a good hardy tree and top work it. The trees were set in rows; one row of Tallman's and one row of Bellflowers and one row of seedlings. Every Bellflower looks nice; grand, good, vigorous trees. In the seedling row they were beautiful trees; the next one has no growth and we are obliged to put in another row. We have uniformity with the Bellflowers. The Tallman will stand our winters,—we are not sure of it in the seedlings.

THE REVERSE OF THE PICTURE.

By S. T. Cannon, Augusta.

A very incorrect or at least superficial idea of many is, that tree agents are a lazy, indolent set, uneducated and unrefined, with plenty of brass and some conceit in their makeup, who cannot earn a living at home, and so make it in their way to travel over the country invading the peaceful habitations of the would-be-let-alone kind, much to their annoyance and discomfort, living an easy life with a soft job in their possession. I am like the minister who was caught in Portland one Sunday, with only one sermon with him, and made to preach to a then, for that day, pastorless congregation. Of course he had to preach the only sermon he had, which gave them a real lively "dressing down," as we would say, and then at the conclusion added that the sermon was not written for that congregation, but for "the miserable sinners out to Saccarrappa," and so begged their excuses. So I beg your excuse to-day, as I have but this one paper to read, and I do not want to spoil your programme.

Those persons to which allusion has been made are full or their stories adverse to the tree solicitor.

Mr. A. ordered a Clingstone peach because he thought it would be more durable in his family, than a Freestone, and when it came

to bear it bore Rhode Island Greenings. Mr. B., another, ordered a grape vine that was to be three feet and thirty-six inches long when delivered. And when it reached him only the root and two shoots came, with about eight or ten inches of wood on each, much to his disappointment. Mr. C. ordered trees that were to be every way superior to those growing in his neighbor's yard, with roots by the bushel. When they came th re were roots, but to use his own language, there were no "vipers" on them, and he believed that all tree agents were cheats and swindlers. Another man, who lives in Massachusetts, ordered some shrubs that were to be delivered early in October, and when they came, it was the first of November, when, in his opinion, everything in Massachusetts is frozen solid, except the cheek of the tree drummer, which is always intact.

There are between 4,000 and 5,000 nurseries in the United States, giving employment to some fifty thousand persons, and having an invested capital of over fifty millions of dollars. The area covered by these nurseries is said to be something like 173,000 acres. This business has within the last ten or fifteen years grown enormously, and is now one of the largest enterprises in the country, with every indication of still greater expansion and ramification in years to come. The reasons for this conclusion are apparent to any who will take the pains to look into its history, and the causes that have made the industry what it is to-day. The large, unoccupied territory in the West, the increased demand for fruit, the growing interest in out-door adornment, with the fact that much of the nursery stock that is sold never matures, are some of the reasons adduced for its still greater future growth.

But as to present results,—those who own homes, whether modest ones in villages, large farms in the country, or attractive estates in town or city, have become deeply interested in the cultivation of trees and plants,—fruit trees taking a large share of their attention. That this is valuable to any state or territory, goes without the saying. Thousands of farms to-day depend upon their orchards for their principal year's income, where ten or fifteen years ago the yield was scarcely sufficient for home uses. Take a drive through town or country—beautiful lawns with shrubs and roses meet your gaze. You notice here and there the large flowering clematis, in various shades of color, climbing the trellis of the veranda, or covering some bare fence or wall,—charming in its masses of flowers. Then again the lawn will be smooth and vacant

in the center (as it should be), with a few blooming shrubs in the corners, and perhaps a border by the roadway or front walk. And although there are a good many yards still needing combing out, great progress has been made in this direction. Men, as well as women are sensibly taking pride in matters of horticulture, as well as pomology. Pear and plum trees are noticed in gardens once barren of these necessities, and small fruits demanding more than your passing notice.

Now, while it is admitted this has not all come about through travelling salesmen, it has very largely. Were it not for the means thus used, the nursery interests would be nothing like what they are now. Business in these days is largely done through representatives of the business. Thus, the dry goods house, the grocery and the hardware trade, and other mercantile branches, have each found that their interests are better served, and their trade held more securely, by sending out their commercial drummers,—and nurserymen do the same way. Why not? The only difference is, while the goods of the former reaches the consumer through the retail trade, the latter deals directly with the planter. It is true, errors are sometimes made So there are in all kinds of business, and there is no reason why a man who buys fifty apple trees of a tree agent stands any greater chance of loss by errors, than the man who buys fifty pounds of sugar, or a ready-made overcoat.

Tree agents come from all the walks of life. A large per cent are farmers and farmers' sons. Then there are mechanics, teachers, students, and so on. And for the most part they are men not only of respectability, but men of education. They are not dudes, it is true, but men of sense and good judgment,—men you and I would like as neighbors.

Follow such an agent over his rounds, through cold or heat, rain or shine, as the case may be, meeting with all the rebuffs named, and many more during his year's toil. When his day's work is done he is ready for rest, but often it is nine o'clock before his day's work is done. You will agree with me that he has earned his money.

Friends, where would many of the profitable fruit orchards, the gardens of small fruit, the outside ornamentations of homes be to-day, had the much distrusted and ever under-rated tree man never called at your door?

After all that has been said, please do not misunderstand me. I do not say that all tree agents are what they should be, but I do say that a good, high-minded one, who is clear-headed and who understands his business, is a *missionary* in his line of labor, and every fruit-grower should encourage him.

Did the buyer study his own wants closer, learn to discriminate between what is real and true from what is false and harmful, encourage the earnest and honest endeavor wherever found, it would be very helpful in each direction. The doctrine of brotherly love is working its way along, but the country is still in need of it in many places. The doctrine of universal charity has not yet extended to all the recesses of our natures. Let us not forget that in humanity, all are friends, all are brothers.

As has before been stated, men in buying trees, do not always get what they order, and oftener do not take care of what they do get. Why, I have known bundles of trees after proper and accepted delivery, lay a week in the bundle unattended to, and then the owner complained of the stock Many, ignorant themselves of the care and culture of trees do the best they can, however, sometimes even employing the services of a professional gardener, who like some religious sectarian, professes too much,—and this gardener goes and puts unsuitable dressing around the roots of the weeping birches, and when the proprietor comes to look at his trees, as the time draws near for them to be in leaf,—he weeps himself, for the money he has paid to that miserable tree-man for nothing: and too, after he has employed the services of a professional.

Well, we who love the study of Pomology and Horticulture, will, bye and bye become better acquainted with the culture of trees and plants, as well as the way in which to procure them; for whoever has a bit of sunshine in his heart, loves such care, next to the care of his family, and needy humanity.

THE PRESENT STATUS OF THE RUSSIAN APPLE QUESTION IN THE NORTHWEST.

By W. A. Taylor of the Department at Washington.

The report of the adaptation of Russian and other fruits to the extreme northern parts of the United States, issued by the Department of Agriculture in 1888, marked a distinct step in the progress of hardy fruit testing in this country. Though it dealt to some extent with all the leading fruits grown in the colder sections lying north of latitude 40°, more than half of the report was devoted to the apple, which as our most important fruit, both for home use and market, was deserving of special attention.

The search for varieties of good quality that would stand our northern winters, part cularly in the northwest, had been carried on for years by private experimenters and in some cases had been aided by the states.

Concerning the decision reached by Mr. Lyon, the special agent to whom the investigation was intrusted, it must be admitted that it was unfavorable to the claims of those experiment rs who had advocated the widespread planting of the Russian varieties. Though many of them had proved sufficiently hardy to endure the winters in the intermediate prairie district. It must be said however, that at that time, not many of the later importations, from central Russia, which were expected to furnish true winter apples for the northwest, had been fruited sufficiently to determine their value.

During the autumn of 1892 a second investigation was made by the department;—Wisconsin, Minnesota, South Dakota and northern Iowa having been visited by a special agent. Mr. John S. Harris of Minnesota. The main object was to determine the progress made in that section during the four years since the report of 1888 was published in determining which of the many varieties were really valuable. Of this report, which will appear in the report of the Secretary of Agriculture for 1892 the following condensation is made: "The season was in many respects an unfavorable one, first, owing to a check in growth apparently caused by excessive rainfall and low temperature during the blooming season, preventing. perfect fertilization of blossoms, and second, a very

wide spread attack of a blight which was prevalent through all the states visited but which showed its worst effect in Wisconsin, eastern Iowa and Minnesota. This defoliated some varieties and caused them to drop their fruit and checked the growth of many others.

"It was most injurious, first, to Siberian crabs, Transcendent being one of the worst; second, to American varieties, such as have originated in this country, either as seedlings of European varieties or of the Siberian species; these were damaged in the following order: Fall Queen, Edgar Red Streak, Talman's Sweet, Fameuse, Golden Russet, Ben Davis, Willow, Perry Russet, Plumb Cider, Bailey Sweet, St. Lawrence, Malinda, Utter, McMahon and Wealthy. This list comprises all the American apples grown there; third, the Russians, including Oldenburgh and a number of seedlings from Oldenburgh." The larger part of the fruit produced this year in the northwest was of the Oldenburgh. Mr. Harris estimates that two-thirds of the home grown apples marketed in the region he visited were of that variety. Wealthy was next in quantity and perhaps equal in value, because of its later ripening season and longer keeping quality.

At the State and county fairs the Russians formed the most attractive and by far the largest part of the exhibits and were smooth and free from scab, while of the American varieties but few were shown and those were badly affected. But few of them are late keepers, however, and the nomenclature is very badly confused; so much so, as to prevent a full report on characteristics of varieties until the identity is better settled. A visit to the orchard of A. G. Tuttle at Baraboo, Wisconsin, who has about sixty varieties of Russians left, out of over 100 varieties planted, disclosed the fact that they were in much better condition than an orchard of mixed American varieties near by.

The most valuable of the new Russians here, seemed to be Glass Green, Yellow and White Transparent. Charlamoff, Hibernal, Antonovka, Vargul, Red Wine, Czar Thorn, Zusoff Winter, Longfield, Early Champagne and Beautiful Arcad. Repka Malenka also appears to be a good tree and the longest keeper of them all, but the fruit is too small to be valuable.

At Rochester, Minnesota, is the largest orchard in this State. It consists mainly of Oldenburgh, Wealthy and Longfield. The crop this year was over 3,500 bushels; 150 varieties have been

tested in this orchard, but only a few have proved valuable. The Russians promising best there, are Longfield, Ostrakoff and Hibernal.

In Carver county, Minnesota, in the oldest orchard of the new Russians, about twenty varieties are doing reasonably well and are as free from blight as Oldenburgh. The list is Borovinka, Charlamoff, Cross, Good Peasant, Krimskoe, Anisovka, Jungfrau, Plikanoff, Hibernal, Lieby, Kluvskoe, Royal Table, Reinette, Red Repka and Numbers 502 and 469.

Brief notes on a few of the best of the new Russians, received at the Division of Pomology from various sources are appended, as follows:

Anisetie. From Dr. Hoskins, similar to Oldenburgh, but two weeks earlier.

Antonovka Medium to large; of good quality; an early winter apple.

Blue Anis Medium size; conical yellow, with stripes of crimson. A winter apple at Baraboo, Wisconsin, and of very good quality.

Charlamoff. Large, handsome and of fair quality. Ripe early in September at Dr. Hoskins' place in Vermont.

Cross of the Volga. Medium to large, clear yellow, and keeps till late winter at Ames, Iowa. One of the best, and a good keeper.

Longfield. Now widely known and widely grown in the Northwest. Of medium quality and a fair keeper.

Lubsk Reinette. Handsome, glossy white, with pink blush. An early cooking apple of too delicate texture for market.

Red Queen. Size medium, conical, cavity very small and full; color greenish yellow with faint stripes of dull red. Late winter at Baraboo, Wisconsin.

Titovka. Large, oblong, smooth, whitish yellow with splashes and stripes of bright carmine. Early autumn; of fair quality.

White Russet. Large, roundish, smooth, white, with no trace of russet Ripens with Dr. Hoskins in early September and is a good sub-acid fall apple.

In the search for hardy varieties among Russians, the apple growers of Iowa, Minnesota and Wisconsin have not lost sight of the importance of growing seedlings from the hardier old varieties and of improving the size and quality of the native crab by hybridizing it with pollen of desirable sorts.

Thousands of seedlings have been grown and tested and some valuable varieties have been produced.

The work of Peter M. Gideon, the originator of the Wealthy and a number of other varieties now quite extensively grown, is too well known to northern apple growers to need more than a passing mention. Many others are engaged in the same line of work with more or less indication of success. It is being carried on with much activity in Iowa where the State Horticultural Society has taken it in hand in a systematic way and is conducting some extensive experiments in breeding and growing seedlings of the different fruits, with a view to securing varieties combining good quality and a desirable season of ripening, with hardiness. In the case of the apple, one line of work thus far begun has consisted in an attempt to grow from two or three selected wild crab trees that have proved perfectly hardy during a long term of years, and which bear fruit of good size, a lot of hybrids resulting from the use of pollen of standard market and table varieties.

In 1891 about 10,000 hand pollinations were made, a large number of them on the apple. In the fall the fruit resulting from these was gathered and the seeds placed in the hands of skilled propagators for growing.

This is so far as I know the most extensive and systematic effort made by a society in this line and its outcome will be watched with much interest.

Among the many new sorts which have proved successful and valuable over a large part of the intermediate prairie district, the Maine orchardist in search of hardy varieties will probably find some varieties that will succeed with him as well as Wealthy.

Some of the best are the following:

McMahon. This variety, which has now been widely tested, is found to be very hardy and a valuable fall apple. Its handsome appearance combined with fair quality have given it a wide spread popularity in the Northwest. It originated in Richland County, Wisconsin. It is said by its originator to be a seedling of Alexander, grown in 1860. It was named by the Richland County Horticultural Society in 1870. Size large; roundish oblate, conical; cavity large, regular, deep, flaring, russeted; stem medium to long, sometimes downy; basin large, angular, deep, abrupt; calyx segments short, green; eye medium, closed; surface smooth, shining, yellowish white often half covered with a beautiful carmine

blush; flesh greenish white, rather coarse, juicy, firm, breaking; core medium broad, closed, clasping; seeds large, long, dark brown, numerous; flavor sprightly sub-acid to sour, excellent for cooking.

Northwestern Greening. This variety is traced to a root sprout, from a grafted tree that had been winter killed in central Wisconsin. It has not yet been sufficiently tested during a severe winter to be safely recommended for planting on the cold, dry prairies but is hardy in the county where it first came to notice, and would probably stand almost anywhere along the northern fringe of the Maine apple region. Though not of high quality it is a good apple, of large size, nearly round, regular, slightly conical, changing to yellow with large, dark dots as it ripens; cavity large, round, abrupt, russetted; stem medium; basin large, round, wavy, deep; calyx segments long, narrow, reflexed; eye large open; core broad, large, closed, meeting the eye; seeds small to medium, plump, light brown, numerous; flesh yellowish, rather coarse, flavor mild, sub-acid, nearly sweet; season, winter, in Wisconsin. Can be kept till late spring but the flesh becomes dry and insipid after its time of maturity is past.

Newell. This variety, a seedling of Perry Russet, was for some years grown under the name Orange Winter, given it in honor of its originator, Mr. Orange Winter of Sauk Co., Wisconsin. It is a late fall or early winter apple of good quality. Prof. Goff regards it as the best apple in quality that is now grown in Wisconsin. Much confusion has been caused by the misapprehension concerning the meaning of its former name, and to avoid that in future, the Sauk County Horticultural Society has adopted the name Newell. It is a large, oblate, apple; cavity irregular, large, deep, abrupt, corrugated; stem medium, slender; basin large, deep, abrupt, regular, netted with russet; calyx segments short, converging; eye large, open; surface smooth, greenish yellow with small brown dots. Flesh yellowish white, fine grained; core large, broad, oval, clasping, open; seeds plump, medium size, dark brown, numerous; flavor mild sub-acid, almost sweet, quality good

Patten Greening. A seedling of Oldenburgh grown about 1870 by C. G. Patten, Charles City, Iowa. Medium to large, oblate conical; cavity round, large, shallow, flaring, thinly marked with russet; stem very short, quite stout; basin round, large, abrupt,

slightly angled and downy; calyx segments broad, converging; eye large, closed; surface waxy, lustrous; color greenish white with numerous large dots. Flesh white, coarse, breaking, moderately juicy; core conical clasping closed; seeds medium size, plump, brown, few; flavor mild acid; quality good, especially for cooking; season early winter.

CRANBERRY CULTURE.

By Rev. N. H. Chamberlain, Monument Beach, Mass.

The laws of cranberry culture are immutable. You obey these laws and you make money. You disobey them, you lose what you might desire, but what you never had. There is money in it under right conditions; plenty of it. You know your own soil. You have one condition in your State — plenty of good, sandy ground; and wherever you find cranberries, you will find a light soil.

In the United States are three localities in which cranberry culture is followed to a large extent; Cape Cod, being just now the foremost, because it was the cradle of cranberry culture. The three are Cape Cod, New Jersey and Wisconsin.

There are three things cranberry culture require which I will put in the order of their value: three conditions *immutable* are, water first, sand second, and soil third. But they tell me in the State of Maine, that you have got about two or three feet of muck in your lowlands, and clay under it. I do not care for that, if you have soil with two feet of muck, that is all right; because if the muck food gave out you could supply, with fertilizers. Muck is the basis of the soil. The three things are water, sand and soil. Have those conditions in your possession and you can raise cranberries in almost any climate.

Now let us begin with the soil. Of course, you would say, you have got to have low land for cranberry culture, because you must have water. With us on Cape Cod, I will observe that all the advantage Cape Cod has is, that it has a latitude that somehow gives certain things which distinguish it from other sections of the country. Our berries will weigh more than your berries. I do not know why it is, but our berries will weigh more than New Jersey berries.

We have this land that never was worth a dollar to anybody, which has become the most valuable land on the Cape. These swamps, we have, not ravines like yours with your rivers. I suppose you have these swamps in Maine; two, three, or ten acres with a bottom of muck. They go in there wherever they can drain their bogs. If you cannot drain your bog down to from twelve to forty inches below the surface, you cannot get the body of water to apply to the vegetation in the cranb rry bog and it will beat you.

I suppose you have swamps here that you can drain. I will take this room for a cranberry bog. If it is covered with bushes or trees,—for they sometimes cut down whole forests,—you must dig up the roots. You clear your bog in that way and your good sense would show you how to make a level surface of it. If you are going to have water you must have a dam on the stream. Then after level ing your bog you dig a ditch from the upland about three rods wide; cut into sections of three or four rods wide, according to the amount of drainage you want. That divides the bog into sections.

Supposing, in these lowlands you have springs in the edges of your bogs; you must cut off the spring water by running an upland ditch. So far as the culture of cranberries is concerned, you must make the bog so you can raise a crop of corn on the soil, and so you can cover it with water for the reasons I have given you. So much for the ditches.

If the upland has no springs, it is an open question whether an upland ditch pays. If you do not dig up the grasses they will trouble you.

The next thing is *sand*. You have got to cover that whole bog with sand. Why? In the first place, I do not know anything about cranberry culture down below a certain point; but I know practically, you have got to have sand. It furnishes something to the vines that muck does not, nor loam; because you might go to work and try to avoid the expense of sanding your bog; then raise your cranberry vines. You would find your vines grew luxuriantly, but it would be all vines and no fruit. Sand gives warmth. Sand keeps in condition, in due proportions the vines and berries. Sand is to the cranberry vine, what right medicine is to the human body. Sand you must have in cranberry growth. Then it serves as a mulch to keep the moisture in a dry spell. You go into a side hill

and dig your sand and put it on the bog all the way from five to eight inches. A bog that has eight inches of sand will last longer than with five. You do not know what power a bedding of sand on old vines will have on those vines the next year. They will come up like great American families. Everywhere there will be signs and promises of future growth and crops.

You must plant the vines. With a little wooden tool you mark out lines, both ways, longitudinal and crosswise. Where the lines cross it should be fourteen inches apart. When you get the vines set out, they must be twelve or fourteen inches apart. When we want to set out the vines we put a man on where the vines are vigorous and cut them off. You do not want them too short, cut them off all the way from six to seven inches and carry them upon the bog in a basket; if you put your own hands to the plow, then take an ordinary stick and make a hole down through the sand into the muck an inch or so and take three or four of these vines and make a little wisp of them and put them into the hole, the ends of the vine through the sand into the muck and push the sand about it and you have your hill planted. If you mass the vines together in too big a bunch, they don't do as well.

Now we have got one plant set out; we have got started. The first year after you begin, you get a few berries; the next year, a few more; the third year a fair crop; the fourth season is one of the best unless you lose the crop by frost or some other cause.

There are two divisions of the berries. The early blacks get ripe two or three weeks before the later berries get ripe. There would be this advantage to your Maine people. I think that Maine is colder than southern Massachusetts, but I am told that we are as liable to early frosts as you are here; for twice on that Cape, all have lost a large portion of our crop on the 13th of June. You can judge whether Nature is worse with us than with you. It is a fine looking berry and comes one or two weeks earlier than the late berry.

The largest berries are not as valuable, because they rot easily; more liable to indentation; because every time you handle cranberries with your hands they lose a certain value. The cranberry vine is a great mixture of eccentricities. The cranberry vine seems to have life like the life of a cat, but you take a wisp of hay and throw it down on a mat of cranberries, the chances are that it will kill your vines underneath.

One thing I want to say. You cannot raise cranberries in the shade of grass or shrubs. We sometimes raise 160 barrels to the acre; that is *business*. Then if you undertake cranberry culture, I advise you, if you have native vines, to plant a few of those vines and see how they do. You might strike a fine variety. We did that and found our native vines, grown from the beginning, that they were prolific producers, but tremendously late and we did not want them. Then there is this thing. If you fail in cranberries I do not see why you would not have a good English meadow left. If you have seen a cranberry bog in its growing time, it is simply a mass of mud covered entirely with vines. It is a sin in cranberry culture to have a root or shrub, a leaf or tuft of grass on that bog. You can measure your crop by the grass.

Innumerable things grow on a cranberry bog. If you know the slink weed or punk root, I can show you and affirm that punk root or slink weed, that grows in the water and throws out long flexible branches and blossoms about August, that it is the sum of vegetable villainies. It cost us $1000 in our bog. It goes through everything but an iron can or stone wall You will find it on the edges of your bogs. It is tough and will cut you if you take a limb. If you throw it into the water, into the stream, it will float down, take root and live.

An insect comes and lays eggs in the calyx of the cranberry blossom. This egg is to be seen only with a powerful microscope, right in the head where the flower is coming. Then when the egg hatches there is a worm right in the head of the flower and it develops with the new shoot; so you can tell. You look for your fire worm to come when you see the new shoots come in the spring. This fellow comes out into his life, into the vitality of the coming crop; he comes and eats and weaves his web. In weaving his web, it draws together the leaf of the cranberry and that causes the lighter color on the under part of the leaf.

Now comes the matter of war. When you find he is there, shut down the flume boards and put the water on. Give him nine hours under water and your enemy is dead; dead like the pests of the Egyptians. But there are two crops of these fellows. The first crop is small. When the first crop comes, then you must kill your enemy, because, if you do not, when he passes into the miller condition he goes about multiplying himself, lays his eggs, then comes a second crop; and in three days after that second crop comes if

you don't destroy the first, the cranberry plants look brown, red and dead as a door nail. The deadest thing I ever saw was a cranberry bog after the fire worm had been over it. Put the water back and you kill him.

The other great enemy of the cranberry is what is called the meadow worm. It is not fatal; it rarely destroys more than one-sixth of the crop, but it is no good to the cultivator.

The berry worm comes, and as the berry grows he grows inside of it and he eats the very heart of the berry and he eats himself to death there or crawls out to go into another berry. He disappears; then they have a variety of new worms coming. The Lord knows what they are sent for. The fire worm is the worst. If you undertake to kill the fire worm, the second crop of them, you see your flowers are open, you would wash the pollen out of them; you cannot put the water over the pollen. You must take the fellow when he begins; then if you can cover the bog with water you can kill him.

I consider that the bog that you can flow in six hours with water is worth 150 per cent more than one you cannot flow. You can fight the very heavens and earth, the frost, the worms; you can protect your crop. When you have early frosts you can flow your bog and save your crop; and your berries will bring more than if the market was flooded.

We can raise cranberries as cheaply as they can be raised on the face of the globe. We are going to get the English and French markets, and we have a big market at home. You cannot overproduce. The limitations are such; the climate and soil do not go to stupidity; it cannot be overdone. It will cost you $3 a barrel, the best you can do. Anything you make over $3 a barrel is in your pocket. The average price runs from $5.50 to $6.50. I do not get $7; but suppose I get $6.50, that gives me $3.50 a barrel. Supposing I get $8 a barrel, I make $5 a barrel. It costs us $3 a barrel to market our cranberries. If you keep your berries for a late market, I imagine they are worth $10 or $11.

DISCUSSION.

Ques. When is your planting season?

Ans. It has been in the spring. Anytime in the spring until July, when you would be liable to get too hot weather. Spring is better than fall; because I think they will live if you keep them

moist, if you keep the vines under water till you take them up. It is better to plant in the spring.

If you let your vines stay out in the air through the winter, some fine winter, you will get a winter kill on them. You lose your vines; or the vines are alive to a certain extent at the roots, but it kills your crops for two years if you get a winter kill. Before the time of freezing up you put the gates down and flow the bog.

If you have frost coming on young berries in July, they begin to set about the first of July, if the water covers those berries, in that condition, nine hours it kills them, but when your crop is grown you can throw the water on and keep it on forty-eight hours,—I think a week, and it would not kill them. If the frost comes very early in the fall and has a pretty general spread, the man who can keep his berries will get a good price for them.

Ques. Is there any special benefit from flowing?

Ans. Only as it keeps up the temperature, no. If you keep up the temperature, you keep the frost off. More than fifty years ago I was a resident of the town of Barnstable. They have a tremendous beach separating the margin from the upland with great sand banks. The town ordered that the people should go there and pick cranberries. As I remember it, it seemed as if those cranberries were growing out of the sand. But I do not think you can get something out of nothing; it must have been the muck that was underneath the sand. Now they have got all these places turned into private cranberry bogs. They think close by the sea is better; but if you can control water and keep the frost away from your vines you are all right.

Mr. Pope. You think it is necessary in winter to have flowage if they keep the ice away from the plant. Would it do to have a foot of ice pressing upon the vines?

Ans. I don't know as it does any particular good; but I am sorry to say, I think that is the condition of my bog at this moment. We have had our vines in the ice a good many years and it did not seem to hurt them; but I do not think it would do them any good.

Mr. Knowlton. How long should the water flow over it in the fall? Whether you would cover as soon as the berries are off and keep flowed until spring?

Ans. I think it is better to leave it as late as you can, because the buds must be developing pretty late; I should say early flowage

would put back the development. It should be kept flowed through the winter. As soon as you flow your bog you want to keep it flowed till spring.

SPRAYING EXPERIMENTS IN 1892.

At the meeting of this society which was held in Cornish, last winter, I gave some general notes regarding the importance of doing something to check the ravages of the Codling moth and the apple scab. at the same time presenting a statement of the work done by the Experiment Station in solving some of the problems connected with this work. It is unnecessary at the present time to repeat the statements then made, but I have been requested to present, so far as possible, the results obtained by ourselves and by the leading orchardists of the State, during the past season. The work relative to the control of the Codling moth, which I had planned for the past season. was only partially carried out. Consequently I shall present only the reports of those orchardists who have undertaken work in this direction.

In response to a letter sent to some twenty orchardists in different parts of the State, eight replies giving the results of experience were received. Several prominent fruit growers have had no experience, while others have just begun and are not ready to report, but will spray next year.

The following notes, condensed from replies received, speak for themselves:

S. R. Sweetser, Cumberland Centre: Sprayed once, June 10th, using one pound Paris Green to 150 gallons water. The foliage was not injured and the fruit was better than usual, but there were no checks for comparison. It was Mr. Sweetser's first experience in spraying.

S. C. Harlow, Bangor: Sprayed twice, June 25th and July 2nd, using one pound Paris Green to 360 gallons water. (Was unable to spray earlier, because of rain.) Mr. Harlow has sprayed for six years and is "more than satisfied with the results." The least tendency to injury of foliage has been found to occur in a bright, dry atmosphere, and the greatest in damp, cloudy weather.

D. J. Briggs, South Turner: Sprayed once, about June 10th, with London Purple, in the proportion of one pound to 150 gallons

water. The cost of the application was about three cents per tree, and the foliage was not injured. Mr. Briggs thinks "if well done, spraying pays very well," and he will continue to spray.

Charles S. Pope, Manchester: Had such a large crop of fruit that the worms made no showing; so could not tell whether benefit was derived from spraying. In such a case as this, I should consider the codling larva a blessing rather than otherwise, for the reason that too many orchardists can not bring themselves to do necessary thinning of the fruit.

W. P. Atherton, Hallowell: Sprayed once, the latter part of June, with one pound Paris Green to 250 gallons water. The foliage was injured on some trees, from the fact that care was not used in rinsing the barrel each time after emptying, so in some cases the mixture was much too strong. Mr. Atherton is well pleased with results, and was greatly disappointed in being unable to spray but once, the past season, on account of breaking his pump.

Henry Smith, Monmouth: Sprayed once, using one pound Paris Green to 160 gallons water. In 1891 he used one pound to eighty gallons, and injured the foliage when the mixture was not constantly stirred. Mr. Smith is well satisfied with the results, and has used checks so that he has proved to his own satisfaction that spraying is effective. He has sprayed for several seasons, and when I was at his orchard in October, he informed me that spraying had ceased to be an experiment with him, as he was perfectly satisfied as to its value.

H. W. Brown, Newburg: Sprayed all of his trees once, and part of them twice, using one pound of Paris Green to 250 gallons water. The cost was about three cents per tree, and Mr. Brown expresses himself as well satisfied with the results. He also emphasizes the importance of using a *fine* spray, and keeping the mixture *thoroughly mixed.*

S. H. Dawes, Harrison: Sprayed twice, June 14 and July 11, using one pound of Paris Green to 300 gallons water, and to each fifty gallons was added one gallon lime whitewash, to prevent injury to foliage. The cost of spraying—including everything—was about three and one-third cents per tree. Regarding the effectiveness of the treatment, Mr. Dawes writes: "The ground under the row not sprayed was covered with wormy fruit, while from the sprayed rows on either side, scarcely a wormy apple was to be seen. Fully ninety per cent of the fruit on the sprayed trees was perfect, and there

was no injury to the foliage when lime was used. My experience during the past two seasons has fully convinced me that spraying pays and I shall continue it as long as I continue in the fruit business. There is no labor that pays so well if the work is properly done."

One correspondent, whose orchard is very productive, has not been greatly troubled with wormy fruit. He has bought fruit from other orchards which had been sprayed, and found it worse than his own. This, however, is no criterion. As before noted, if the tree is heavily loaded, the presence of the codling larva is to be desired, unless the owner has sufficient courage to thin the fruit. It is nature's method of preventing too great a tax on the strength of the tree. It is also very evident that the amount of wormy fruit, though it might be actually the same in the two orchards, would appear much less in a large lot than in a small one, and of course the *per cent* of damage would be smaller.

Last winter the question as to the danger of eating fruit which had been sprayed was discussed, and from a theoretical consideration of the subject we concluded that there was absolutely no danger from eating the sprayed fruit;—that the highest probable amount of poison per fruit, on trees sprayed twice with Paris Green in the proportion of one pound to 200 gallons of water, was less than 3–1000 grain.* To assure ourselves in a practical way of the substantial correctness of this statement, a number of fruits were actually immersed in a preparation of Bordeaux mixture, to which Paris Green had been added in the proportion of one pound to 250 gallons of the mixture. The variety used was the Alexander. The fruits were dipped in the mixture July 20th and were left till maturity, when they were taken to the chemical laboratory and submitted to analysis. Result: *No trace of arsenic found.* I regard this as an important test from the fact that by immersing the fruit the greatest possible amount of the mixture was obtained, and the Bordeaux mixture being much more adhesive, would remain on the fruit much longer than would a simple mixture of Paris Green and water. Therefore I would repeat the statement made last year: There is no reason why fruit sprayed as directed should be unwholesome. But I would also add the caution that care must be used in making the application.

*Rep. Maine Pom. Soc. 1892, p. 78.

APPLE SCAB.

But one of our correspondents—Mr. Henry Smith of Monmouth - had attempted the use of any of the copper compounds to check the apple scab. Some have had little trouble from this source, and one thought he had derived benefit from the use of London Purple. I should question the accuracy of the last observation, however, as London Purple, being an impure arsenite of lime, does not contain the elements usually considered of value in this connection. Mr. Smith has sprayed for two or three seasons with Bordeaux mixture —four pounds lime, six pounds Copper Sulphate and thirty gallons water—and is fully convinced of the value of the treatment. From his former experience, Mr. Smith was so well satisfied with the effectiveness of the spraying, that he left few checks this year. In one orchard, however, two rows of Nodheads were sprayed, after bloom, with Bordeaux mixture and Paris Green. As to the result Mr. Smith writes: "From those two rows I gathered the finest specimens I ever raised—large, bright and free from scab and worms; while two trees not sprayed were, I think, as bad as any I ever saw—gnarly, scabby and almost worthless."

Our own work in connection with this subject was, in some respects, less satisfactory than last year; but in a general way the results are very encouraging. The work was conducted on the same general lines as last year, both Mr. Pope of Manchester and Mr. Moore of Winthrop co-operating. The season was very unfavorable and it was difficult to find a suitable time for the work. In nearly every instance rain fell within twenty-four hours after the spraying was finished, and as a consequence the results were materially affected.

Mr. Moore's orchard is usually very badly attacked and would seem to be an excellent field for work. Many of the trees bore very heavily in 1891, however, and were not as well adapted for our use as they otherwise would have been, as trees bearing but little fruit are seldom attacked so badly as those which are heavily loaded.

Two solutions were used in Mr. Moore's orchard—the ammoniacal solution of copper carbonate, recommended last year, and the "improved" ammonia-copper carbonate solution suggested by Professor Galloway.

The first of these, which we will call solution A, consisted of five ounces carbonate of copper, three pints strong ammonia, fifty gal-

lons water. The second, solution B, consisted of three ounces carbonate of copper, one pound carbonate of ammonia, fifty gallons water.

A number of trees were sprayed four times with each solution, while others in the same vicinity were left as checks. Rain followed soon after each application, and the results were not as striking as might be desired. The average results, however, are slightly in favor of the sprayed trees as compared with the unsprayed, while solution *A* gave slightly better results than did solution *B*. The percentage of fruit absolutely free from scab, was very low in every case. In a general way, however, the work is of value in that it confirms the results obtained in Mr. Pope's orchard.

The work carried on in the orchard belonging to our president, Mr. Pope of Manchester, was of sufficient extent to warrant very free conclusions, from a commercial poi..t of view. The orchard is situated on a gravelly hill-side, having a northwestern exposure, and instead of single isolated trees being given different treatment, contiguous rows, extending down the hill-side were selected. In this way all of the rows presented essentially the same conditions, part of the trees being on high land and part on low.

In addition to the two solutions used in Mr. Moore's orchard, a third—the modified *eau celeste* described last year was used. The formula for this solution was as follows: Two pounds sulphate of copper ("Blue Stone"); two and one-half pounds carbonate of soda; one and one-half pints ammonia; thirty gallons water.

To be doubly sure of results, duplicate series were used. In this way we have two rows in different parts of the orchard sprayed with each solution; while for comparison three rows, alternately with these, were left without treatment.

The following diagram shows the relative location of the sprayed and unsprayed trees:

Solution A....	*	*	*	*	*	*	*	*	*
Check	*	*	*	*	*	*	*	*	*
Solution B ...	*	*	*	*	*	*	*	*	*
" C ...	*	*	*	*	*	*	*	*	*
Check	*	*	*	*	*	*	*	*	*
Solution A....	*	*	*	*	*	*	*	*	*
" B....	*	*	*	*	*	*	*	*	*
Check	*	*	*	*	*	*	*	*	*
Solution C ...	*	*	*	*	*	*	*	*	*

Naturally all of the trees were not equally productive, and in counting the fruit only those trees which were under approximately the same conditions were selected.

In this connection, about one barrel of fruit from each of thirty-eight trees was counted, and without going into details, I will give, in the accompanying table, a general summary of the results obtained:

Solution.	Number examined (average per tree.)	Free from scab.	Slightly scabbed.	Badly scabbed.	Per cent free. (average.)	Per cent "No. 1" fruit (as regards scab.)	Remarks.
A	559	171	347	41	30.1	93.0	Average of 8 trees.
B	583	34	365	184	6.1	71.0	Average of 8 trees.
C	615	32	414	169	5.6	73.5	Average of 8 trees.
Check	628	5	239	384	0.9	41.2	Average of 14 trees.

As will be observed, the average proportion of "No. 1" fruit on unsprayed trees, considering fourteen trees in all parts of the orchard, was only 41.2 per cent of the crop, while the average proportion on the trees sprayed with the least effective solution was seventy-one per cent, a gain of nearly thirty per cent. With the most effective solution—the modified *eau celeste*—this difference was much more marked, amounting to nearly fifty-two per cent.

The amount of fruit absolutely free from scab is not as large as might be wished. The standard adopted in sorting the fruit, however, was very rigid, and much of that classed as "slightly scabbed" was in reality better fruit than that classed as "free."

With the above figures in view, and considering the fact that the results are in direct confirmation of those obtained last year, there would appear to be little doubt as to the effectiveness of the treatment when the work is properly conducted.

While the Experiment Station will continue its work of combating orchard pests of various descriptions, I hope that during the coming year more of the practical orchardists of the State will take the matter in hand, and make use of the knowledge already gained.

AGRICULTURE AND HORTICULTURE IN THE SCHOOLS.

Under this general subject a series of exercises were given by Miss M. L. Wilson and a class of her pupils from the East Auburn school. The general object was to illustrate the interest pupils take in the objects of nature, especially plant life, and the desirability of introducing the study of the elements of argiculture into the schools of the State. This school exercise is published in the Report of the Board of Agriculture and we take pleasure in referring our readers to it. It proved one of the most popular exercises of the meeting.

In connection with the general subject the following paper was read by Miss H. M. Merrill of Farmington:

STUDY OF PLANT LIFE IN SCHOOLS.

By Miss H. M. Merrill, First Lady Assistant, Farmington Normal School.

In presenting a few points with reference to the study of plant life, I trust to be excused from looking at the subject from the teacher's stand-point, considering briefly what it is possible to accomplish in the remotest country school. A consideration that cannot be ignored is the present tendency to the over-crowding of school courses. Surely the period plainly intended for that of mental as well as bodily development is long enough for acquiring the essentials that will best fit the boy and girl for his and her work in the world. What these essentials shall be is the question that continually confronts the educator, and as new conditions shape themselves, the demands of the present are no longer satisfied with the requirements of the past.

It is no longer a question under discussion, that elementary science should have a place in the elementary schools. The teaching of science has worked its way from the high school to the primary grades, and has there found its proper beginning. That education is recognized as incomplete that does not introduce the child to the world of nature, as well as to the world of books, and it fails of its most practical results if the mind is not quickened to grasp knowledge through the senses and to investigate, to some degree, the great and silent forces that are working around him.

The child, when he enters school, is a little bundle of animated curiosity, bristling with interrogation points and putting out feelers

in all directions. Yet how often this healthy activity, which should be the teacher's safest guide, is restrained and well-nigh paralyzed to his incalculable loss. In this nature study, no branch presents so wide a field as the study of plant life. But while admitting its unquestioned claims to a place in the school course, two questions naturally suggest themselves:

1. What are the results to be obtained in this as in other branches of science teaching?

2. What particular subjects may be touched upon and how?

Let us consider briefly these questions in their reverse order, finding in the answer to the second some light thrown upon the first. As just said no broader field presents itself in elementary science than the study of plant life. The material is every where accessible, and interest and enthusiasm cannot fail to be aroused under the skilful teacher. Two or three underlying principles should always be borne in mind in the teaching. Every lesson should have a definite purpose, otherwise the lessons soon become vague and disconnected. There should be real observation on the part of the pupil, not through the eye of the teacher, though directed and guided by her. And no other study gives wider scope for careful, skilful questioning.

The study of the plant may begin at any point, but the subject of germination naturally suggests itself among the first Pupils of all ages, but especially children, delight to learn by doing, and some simple experiments, such as are suggested in Prof. Goodall's little pamphlet, "Concerning a Few Common Plants," are easily performed and very helpful. Select a few seeds as the corn, bean and pea, and spend a little time in their examination. Let the pupil discover how a tiny plant with stem and leaves is folded away in the seed coats, and compare the three, noting differences and resemblances. In the meantime in a few deep plates or flower pots filled with clean sand, let him plant a few seeds of each kind half an inch deep, and others at intervals of two or three days so that when all have started three stages of growth will be represented. What changes have taken place in the transition from the hard, dry seed to the plant, now in possession of all the parts of the full grown tree? How has nourishment been supplied? Whence will it come henceforth? What conditions have been necessary to growth? How does the seedling of the corn differ from that of the pea and the bean from both? Some seedlings may also be raised

in other ways. Lay upon a plate a moistened sheet of thick blotting paper, place some seeds of each kind upon it, and over these another sheet of paper, keeping the whole moist and warm. Place a layer of cotton batting upon a tumbler of water and lay a few seeds upon this. When a seedling has started suspend it by a thread over some water in a glass, so that the roots dip into the water while the seed-leaves remain above, and note in what part of the root growth takes place, but puncturing it at regular intervals with a needle dipped in India ink. By such means the growth of the root may be easily traced and compared with that of the stem. Such simple experiments all through the work add much to excite the interest and quicken the observation.

As we pass to the parts of the plants, their peculiar forms and their relations to each other, the facts are very numerous upon which the skilful teacher can draw. If the children have the great advantage of living in the country, encourage them to go for flowers to learn their haunts and habits. From what soil does the flower spring? What conditions does it require as regards sun and shade, dryness and moisture? What enables the delicate flowers of spring to follow so closely upon the frozen footsteps of winter? The peculiarities of different plants, their habits, as illustrated in the so-called sleep of flowers and their movements, visible and invisible, as shown in the coiling of tendrils, or the quick closing of the leaves of the sensitive plant, suggest subjects of which space permits mention only here.

As we come to the study of the flower, the variations of color, form and growth, in which may still be traced the simple, wonderful laws of development that are the same for the tiniest blossom as the most brilliant, we open to a chapter of which we may well despair of reaching the end. With certain principles the pupil should always, of course, become familiar. To one subject only I will call attention in this connection, the relation of insects to plants in the work of fertilization. This is strikingly illustrated in the little bluet or innocent that whitens the fields in early summer. In certain clumps of flowers the long stamens are found with the short pistils, in others, the long pistil but short stamens, so that the bee in his flight from flower to flower brushes the pollen from the long stamens of one flower to deposit it on the long pistil of another, and vice versa. Although as yet but imperfectly understood it is a subject too full of interest and importance to be left untouched.

It is a great pity that so little attention is given to the subject of fruits. The study of the plant often begun in the spring, frequently touches very briefly upon it, if at all, while without it no complete idea of plant development can be obtained. From the less prominent kinds, the winged fruit of the maple and elm, or the pod of the milkweed, to the apple, pear and grape the forms are varied and the study of them no less interesting than that of any other feature. The classification is simple and the child soon learns to distinguish between a dry fruit and a fleshy fruit, a stone fruit or a pome. It may be a discovery to learn that the strawberry is not a berry, but the orange is; that the raspberry and blackberry are clusters of stone fruits; and that the fig is a flower-stalk grown pulpy; and every such discovery is a healthy stimulant to further progress. The fruits of our own State should claim the first attention. What are they? What fruits are sent from the State? What are some of the means of obtaining new varieties? It is interesting to note in this connection how large a proportion of our fruits belong to the Rose family.

Two suggestions in regard to ways of working may not be out of place just here, the use of drawing and the value of school collections. Drawing should properly go hand in hand with the study of the plant from the first lessons. What the pupil has not seen he cannot represent, what he can express correctly by the simplest outline, he has made his own. No exercise serves like this to quicken observation, to fix impressions. The chief value of collections lies in the making. Collections of seeds, of different kinds of wood, of pressed flowers, of different forms of leaves, represent a large amount of knowledge that would be gained in no other way, and the encouragement of a most excellent habit.

To our first question then, for what results may we look in such a line of work as has been so hastily outlined, I answer:

1st. It affords the best training for the observation and the formation of careful habits of investigation and thoughtful judgment. That much is due to training is shown in the advantage that the child from the city school often has over the country boy or girl. Under the skilful teacher the pupil learns to observe, to compare, to verify, and to draw conclusions. He finds he must often go back to correct imperfect impressions and that his hasty conclusions must be exchanged for those resting upon a wider basis of fact.

2nd. It increases his capacity for enjoyment, Whether his after-work lies in this direction or leads him far from it, he can never

forget the interest once fully awakened in the green and growing world around him. To know by name the flowers, shrubs and trees of his early home, is to feel an interest in every flower that grows by field or road side.

3d. It puts him into possession of facts of practical value. No true scientific knowledge ever comes amiss. He has laid a foundation that will be directly or indirectly useful to him, in proportion as he carries on his work in this direction.

No features in the educational progress of to-day compare in interest with the new departures in practical and scientific training. The cooking school has been tested and has not been found wanting. The manual training school has been found to fill a need long recognized, but which no line of work until this has supplied. But certain countries of Europe are in advance of us in this respect, and have put the practical study of plant life on a level with manual training. I think I am quoting correctly from a speech by Dr. Rounds, in saying that there are 20,000 school gardens in Austria, and that the experiment has been successfully tried in France.

From the study of the plant in the schoolroom to its actual care and cultivation in the garden is certainly a step at the thought of which we take breath. Such work requires specially trained teachers, appliances and funds. So have cooking schools and manual training schools required all these, and in other states, if not in our own, are permanent features of the school system. In the mean time a step has been taken in advance of merely schoolroom work, or more correctly speaking, the work has made some progress beyond the bounds of the schoolroom. I have been interested in reading the reports of the Massachusetts Horticultural Society and of some results secured in the direction of window gardening and the care of plants by children. But I have been more interested in the efforts of this society in our own State the past year in connection with the State Fair. Prizes were offered to the pupils of high schools for collections of pressed flowers and a window garden department was established for the purpose of interesting children in the care of flowers. Plants were furnished to the pupils in Auburn and Lewiston with directions for their care, which devolved wholly upon the children, and on Children's Day an exhibit was made with results that proved the plan practicable and satisfactory.

If we could realize at once the millennium in our schools we might possibly be the better for it. But such an experience is not in store

for us, and in the meantime the day of small things is not that of unimportant ones. Are we who are teachers enthusiastic and wide awake to take advantage of every resource that may supplement our work? Are we interested in all lines of advance? Do we know what can be done and is done in other schools and other states? If we have under-estimated the importance of this work, surely it is worth our while to test its merits and it will be found the Book of Revelation indeed.

THE APPLE IN COOKERY.

By Miss ANNA BARROWS, Principal of the Cooking Department of the School of Domestic Science, Boston.

The cookery of the apple is interwoven with the principles of all cookery, therefore this subject might be expanded into a good-sized cook-book. As this is impossible we can take but a bird's eye view of the apple in its relation to human life. It has been truly said, "There is no fruit in temperate climates, so universally esteemed and so extensively cultivated, nor is there any which is so closely identified with the social habits of the human species as the apple."

We shall all agree, that even if the apple had no commercial value, it would have as good claim to existence as other ornamental trees. The masses of white petals, shading into pink, that deck the trees in May, make them worthy rivals of their cousins—the June roses.

"As the apple tree among the trees of the wood, so is my beloved among the sons," says the song of Solomon. Its fresh green foliage affords pleasant shade in midsummer, while the ripening fruit in autumn shows a greater variety and richness of color than that of the maple or any merely foliage tree. Even in the winter, when the foliage and fruit have departed, the knurled, crotched branches, with their snowy covering, make the apple tree a picturesque object in the landscape.

The apple probably boasts a more ancient lineage than any other fruit, though it is decidedly doubtful whether it was the

> "Primeval interdicted fruit that won
> Fond Eve, in hapless hour, to taste and die."

The word apple is often used to describe a round object, as the apple of the eye; Dickens mentions apple-faced children. The derivation of the word is uncertain, it may signify watery fruit, or a round body.

The apple tree, *Pyrus Malus*, flourishes in almost every country within the temperate zones, therefore it is conspicuous in the fables of every race and is the popular fruit in poems, proverbs, superstitions and pictures. There is much interesting literature connected with the apple, but this paper must be devoted to its practical aspect, its food value.

Wise was the Englishman who once said to some of his countrymen: "Had you but given to the improvement of your apples a tenth part of the pains it cost you to naturalize those four species of grapes, how much more substantial glory you would have won." So we might say, if American housekeepers had given half the attention to the apples that they have bestowed upon fancy dishes in which oranges, lemons and bananas figure, our country might have gained much in health. Is it not a reflection upon our New England orchards that oranges are often cheaper than apples even in winter? Because the apple is so abundant in our land it is within reach of the humblest family and it may appear in such varied forms that none need ever tire of it.

True there is a large percentage of water revealed in a chemical analysis of the apple, but it is also said to have a larger per cent of phosphorous than any other fruit; and there are other double distilled essences of the sunlight and glorious air in which the fruit has hung for months, combined with the forcegiving elements of mother earth drawn up by the roots of the sturdy tree.

And as for water—is it not by far the larger part of our bodies? we refuse to recognize this fact and persist in overloading them with too solid foods until we groan with rheumatism or some vital organ rebels.

May not the apple be as beneficial as the much lauded grape-cure? Some one has observed that apple lovers are usually people with healthy livers and therefore very amiable. An old proverb says: "It will beggar a doctor to live where orchards thrive." No other fruit is so deserving of the cook's good opinion, in that it is to be had at all seasons. From the early summer sweetings around to the hardy russet in the late spring and summer there is always some variety in prime condition. A fruit which has been in con-

stant use for generations must have been quite thoroughly experimented upon and yet there is room for new combinations to be invented.

So many are the dishes in which the apple is a principal ingredient that they must here be described in groups rather than in detail. The cookery of the apple is dependent upon the fundamental laws of the art. Much depends upon our choice of apples, the so-called "cooking" apples cannot give the best results and are no more to be chosen than inferior, stale eggs or rancid butter. We have much to learn as to the varieties best suited to different culinary purposes; besides the flavor and degree of acidity of an apple its general texture is also to be considered. In general, for ordinary use it is best to select apples that are solid and heavy, not mealy but juicy and full of sparkle, neither very large nor the smallest in size. To attempt to use mean apples for cooking results in a loss of time and temper, sugar and spice.

The roasted or baked apple ranks highest in popular estimation.

> "The apples sputtered in a row,
> And close at hand the basket stood
> With nuts from brown October's wood."

The modern fireplaces give an opportunity to revive the old fashion of hanging the apples by a string before the open fire, but this is oftener done for a luncheon than for table use.

A baked apple is delicious if properly prepared whether sweet or sour. It should be wiped, perhaps washed, the skin better not be cut. Earthen or granite ware baking dishes should be used as tin or iron injure the flavor of the fruit. The oven should be hot enough to change the apple juices into steam and puff out every cell till it forms a frothy, pulpy mass. If there is danger of the escaping juices burning on the baking dish, a little water should be added. The advantage of retaining the skin is that it holds the steam and thus really hastens the process. Sometimes, however, the skins are imperfect and we prefer to remove them and also the cores and to fill the centre with spiced sugar or baste them with butter and sugar which glazes the outside. Then very juicy, apples thus prepared may be placed on round pieces of bread which absorb the syrup and are to be served with the fruit.

Baked apples may be canned in a thin syrup and reheated when the jar is opened. The pulp of snowy baked apples beaten with whites of eggs may appear as apple snow or floating island com-

bined with cream or soft custard. The 'lamb's wool' mentioned by old writers was a mixture of this frothy apple pulp with spiced ale.

Half way between the baked apple and apple sauce stands a simple, yet beautiful dish called by a French name, a compote. The apples are to be cored and pared without quartering, and cooked slowly in enough heavy sugar syrup until they are soft, but not broken; then drain and dry, slightly, in a moderate oven with the door open, occasionally basting with the syrup. The spaces where the cores were may then be filled with apple jelly and the whole sprinkled with granulated sugar. Thus prepared the apples may be served with any simple pudding or custard for dessert, or as preserves for tea, or with mushes for breakfast.

Quarters of large apples look well cooked in the same way. If well cleaned before paring, the best portions of skins and cores should be covered with cold water and cooked until the flavor and pink color may be strained off with the water. This is ready to use as the foundation for the syrup for preserving, or for a pink pudding sauce for the next apple pudding, or may be made into jelly. The skin in some form should be cooked with apples for canning, as it adds much to the flavor and nutritive value. The skin may be left on the fruit for mince or other pies where it is chopped or sliced, and it is not out of place in puddings.

There is no form of sauce much better than the baked apple sauce, where big quarters of fruit are packed in earthen jars with brown sugar or molasses, covered closely and baked slowly in a moderate heat like that of the old brick ovens or modern Aladdin, until the contents of the jar have shrunk to half their original bulk and are rich, red and luscious.

The white, pulpy apple sauce which is cooked quickly and made smooth by frequent stirring and beating is best suited for a meat sauce, if not too highly sweetened. An apple stuffing is excellent with any rich, fat meat like goose or pork; for this, the pulp of cooked apples is mixed with a few bread crumbs and seasoned with sage and onions. A leg of pork boned and filled with apple stuffing is suitably garnished with baked sour apples. Veal or beef stews are often improved by the acid flavor of the apple and it may be added to soups or sauces. Mrs. Mary H. Abel, author of the Lamb prize essay on "Sanitary and Economic Cooking," well says, "Fruits seasoned with meat juices and fat instead of with sugar are not enough known among us."

A dish of fried apples is an old-time dainty too good to be allowed to go out of fashion. The apples are cut in rings or thick slices and fried in the fat from sweet, fat salt pork, onions may be combined with them, a tough apple is best for this purpose. Or, the slices may be fried in butter, sprinkled with sugar and served on toast, or they may be broiled with beef steak or with bacon and thus seasoned with the fat of the meat. Apple fritters are but a variation of the fried apples; the apples should first be cored then pared and cut in four or five slices, then they are rolled in flour, dipped in batter and fried. They look very much like a doughnut with a hole in the centre.

W. M. Williams says in his chemistry of cookery, "When thin slices (of apple) are immersed in a bath of melted fat at a temperature of about 300° F. the water of their juice is suddenly boiled; and as this water is contained in a multitude of little bladder like cells, they burst and the whole structure is puffed out to a most delicate lightness, far more suitable for following solid meats than sodden fruit enveloped in heavy, indigestible pudding paste. Another advantage is that with proper apparatus the fritters can be prepared and cooked in about one-tenth of the time required for the preparation and cooking of an apple pudding or pie."

There are hundreds of recipes for apple puddings to be found in the cook-books, but we shall find that they may all be classified under a few general formulas.

1. Apples in combination with starchy foods as rice, tapioca, sago, macaroni, bread and cracker crumbs.
2. Apple doughs, such as dumplings, short cakes, pies, &c.
3. Apples combined with custards and creams.

These different types are also more or less united. There is a too common idea that there is no nourishment in puddings, on the contrary many of them are very substantial food. The pudding shall be chosen to supplement the rest of the meal, a light, delicate dessert with heavy meats and the richer puddings when the first course is less "filling."

For the apple sago or tapioca puddings the apples are cored and pared, placed in a buttered pudding dish and the centres filled with sugar in which has been mixed a little spice and salt. Then pour over the tapioca or sago which has already been cooked for a half hour, with five times its bulk of boiling water. Bake until the apples are perfectly soft, turning each one over in the tapioca when half

done. Strained apple pulp or jelly may be put with tapioca cooked in less water and the whole moulded and served cold with cream. Cooked or chopped apples are also mixed with crumbs or slices of bread or cooked mushes.

There are many easy combinations possible between the ordinary quick biscuit dough and apples. The dough may be made light with cream of tartar and soda, or baking powder or with sour milk and soda. A pint of flour makes enough for a small family, one tablespoonful of shortening may be used with this quantity. The dough should be as soft as can be easily handled. Roll out till one-half inch thick. This is a suitable crust for apple dumplings, either steamed or baked, though the latter might be made richer. Or the dough may be spread with cooked or chopped apples sprinkled with spiced sugar and rolled like a jelly cake and steamed for an hour. When the time is limited, cut the roll in inch slices, stand on end and steam or bake for thirty minutes. The dough may be made softer, an egg added, the cut apples stirred in and the mixture steamed in cups or in one large pan.

Apples may be cooked in a pan with a layer of this crust over the top; when ready to serve, reverse on a plate so the crust will be at the bottom.

An apple shortcake is far better than strawberry shortcake out of season, and the same dough with a second tablespoonful of butter will serve for that.

A similar combination is the old-time pandowdy, where the apples, unsweetened, were baked in deep pans lined and covered with crust. When done, the top crust was removed, the apples spiced and sweetened and alternate layers of crust and apples piled high on a platter.

The shortcake and pandowdy are the connecting links between the apple puddings and apple pies, of which there are many varieties. There are pies with sliced apples, stewed apples, pies sweetened with molasses, mince pies, Marlboro pies, turnovers and fried pies. None of these puddings or pies can appear at their best unless wise heads and deft fingers have been used as well as good materials. Much depends on attention to apparently trifling details and too often these are ignored. A loyal American woman has said: "During years of foreign travel I have never met a dish so perfect as the American apple pie *can be*."

Some of the apple custards and creams have already been referred to. Apples preserved in syrup may be moulded with the help of gelatine and served with cream or custard. A custard may be poured over apples prepared as for the tapioca pudding and baked until the apples are soft and the custard firm. The apples may be partly steamed or baked before the custard is added.

Grated apples added to a thin frosting make an appetizing filling for a layer cake. Apple sherbet and apple ice cream are possible but the apples are not at their best when ices are most desirable.

While the best apples are self-flavored, if we must use crabbed or insipid fruit it is much improved by the addition of spices. Ginger root, whole cloves, allspice or cinnamon may be cooked with preserved apples; ground spice injures the appearance of the fruit. Clove was much used in the old recipes for apple cookery; salt is an important flavor for most fruits; butter is often used where a little salt would do as well; a hint of almond always harmonizes with apples since the same flavor is to be found in the seeds; lemon juice is especially useful in the spring when the apples have lost their life and sparkle.

A pleasant beverage for the invalid is made by pouring boiling water over raw apples cored but sliced without paring; when the water is cold strain, sweeten and flavor if desired. The pulp of a wasted apple can be used in the same way and the water in which dried apple is soaked is also agreeable. The expressed and fermented juice of the apple has doubtless been the means of ruining many orchards and their owners. Vinegar is a useful commodity but probably if we used more fruit we should want fewer pickles.

Hitherto cider has seemed to be the only use for the refuse or surplus of the apple crop. As the quality of the fruit is steadily improving, and our knowledge of cookery increasing, jellies and other delicacies will, ultimately, take the place of the fermented product of waste fruit.

Count Rumford, one of the pioneers in scientific cookery, said: "The number of inhabitants who may be supported in any country upon its internal produce depends about as much upon the state of the art of cookery as upon that of agriculture; but if cookery be of so much importance, it certainly should be studied with the greatest care; cookery and agriculture are arts of civilized nations, savages understand neither of them."

In these days of concentrated or condensed foods is it not advisable to put apples in a more convenient shape for transportation and immediate use than has yet been done? Dried apples have been prominent in the past but are now superseded by the evaporated fruit. In the Boston market the sales of sun-dried or string dried apples amount to practically nothing, while 15,000 to 20,000 cases of evaporated apples, or nearly one million pounds (1,000,000) are sold in a single year.

The canned apples are extensively used, from 15,000 to 20,000 cans with a dozen gallon cans in each case being sold in Boston yearly. There are but few quart cans in the market. Apples in this shape are used chiefly in restaurants and large establishments not yet having found their way into private houses to any extent. This is partially due to the careless fashion in which they are often put up and to the large size cans.

Is it not possible that a higher grade of canned apples would be more satisfactory to the general purchaser and more profitable to the packer? We have also much to learn as to the best method of developing the flavors of different varieties of apples. Some are better suited to canning, others would make a smooth, rich marmalade or apple butter, and yet others would be more satisfactory for jelly. Why should not apples be preserved or crystallized and made into dainty confections as well as plums or pineapples?

The apple is useful as a basis for more expensive and more highly flavored fruits. A single quince, for example, combined with half a dozen apples will give its distinctive flavor to the whole.

Is there not an opportunity here for women to earn more than a livelihood, provided they are equipped with suitable training and proper utensils? Would not such an occupation be more desirable than sale work? An increased manufacture of home made apple jelly, marmalade or apple butter might be a twofold benefit to this State, providing work for its people at home and putting the apple crop in convenient form for transportation. The State and county agricultural societies should encourage such industries by offering special premiums for exhibits in this work in the woman's department.

FLORICULTURE.

By Mrs. Alonzo Towle, Freedom, N. H.

I am very sorry that your wives are not represented here by large numbers, to-night. Am gratified that we have a goodly number of brothers. Almost the first query that will greet you at home will be: What have you to tell me? What of your meeting at Augusta? As I cannot speak to them face to face, from necessity I will talk with them by you and your yearly report. The first section will be a "special" to farmers' wives, or countrywomen. The second, to all whom it concerns. The most unsatisfactory part of flower gardening, as we have been accustomed to do it, has been the very short time we have had to enjoy the fruit of our labor, ere the frost has spoiled the beauty of our blossoms.

Only from about the middle of August until the last of September can we reckon on their brightness, as we may always be on the lookout for the frosts even at that early time. We have toiled and planned all the spring and early summer to have our pleasure snatched from us unceremoniously. To avoid this disappointment we should plan for flowers all the season around. We can begin in the autumn by preparing our beds. Fertilize them well with well pulverized domestic fertilizer, rake it well into the soil. Fix one bed exclusively for spring blooming bulbs, crocus, tulips, hyacinths, jonquils, snowdrops, etc. If we have not courage to start out with them all, we can begin with a dozen crocuses and the same number of tulips. If we are pleased with these we can enlarge our number and variety the following autumn. Crocuses will cost from ten to twenty cents per dozen. Tulips, by the dozen, from twenty-five cents upward as far as we care to go in fine varieties. Hyacinths range from five cents to thirty-five each. Freesias from thirty to seventy-five cents per dozen. Jonquils from twenty-five to fifty cents by the dozen. These would bloom in May in our climate, unless we should have a very early spring when they might come out in April. Thus we begin the season by having our bulb bed for May. In June we have roses, of which every farmer's wife should have a plenteous variety. The common, old fashioned sorts are pretty enough for any one,—the White, Blush, Damask, Cinnamon, Yellow and the climbers. If we have time and wish so to do, there

is no reason why we should not deal with the hybrid perpetuals, as we may without fear of failure. To keep company with the roses and if you choose, to make a border for your rose bed, there is no herbaceous plant that will give so much lasting satisfaction as the Sweet William, in the variegated kinds. They grow with very little care and preserve their flowers for weeks in a state of perfection. The person who loves showy flowers would do well to have along with these, a bed of peonies. Their nodding brightness is very attractive to many.

These will hold their own very well until the pansies and petunias begin to blossom. Now we shall have to go back a little to consider our seedlings. The best way to get our plants is by sowing good seed, unless we wish particular varieties. If a plant has been crossed with some other, or hybridized as we may better say, the seed of that plant you cannot be sure of. It *may* produce what you want, so we are told by seedmen, but you can't get a Baldwin apple tree if you plant all the seeds you can find. The seed partakes of the vitalized and fertilizing qualities of the root and not of the branch. If a general variety of pansies, verbenas, petunias, etc., is wanted the better way is to sow good new seed each spring. Experience will teach us many things that we can not learn from any other source but perhaps one person's trials and attempts may help others over many little petty annoyances. The most of us like to have a part of our seedlings bloom early. If we do have them ready for blooming by the last of June or first of July we must either grow them in a hot bed or some other place where the temperature is kept high and they can be driven along the road to life and activity. I have what I call my forcing shelf. A shelf put up in a sunny window in the kitchen, up as high as it can be placed and catch the sun's warmth. The seeds germinate quickly as the elevated position and giving them a good draught of warm water every morning soon do the work. They must soon after coming up through the soil, be transferred to a place of lower temperature as they will grow so fast they will not be able to hold their own heads up in a short time if you do not. Pansies, petunias, zinnias, in fact anything that we wish early can be as nicely grown there as in a hot bed, the only precaution needful to mention is, don't try too many. Take just enough to give a collection for one flower bed for July. Sweet peas must be sown as soon as the snow is off. Dig a drill eight inches deep, fill in one inch or more of well rotted fertilizer,

cover this with an inch of soil, sow a dozen and a half to a foot. If they all germinate they may be thinned out to a dozen. They need much moisture all the season through. Good, rich soil will root them well, as this is necessary if we have good plants. There is a class of plants which it will be of no avail to sow early, unless they can be kept at a high temperature. They are of tropical origin and need that the soil shall be thoroughly heated and kept so, for them to start at all. Last year I planted some seeds in May; concluded they were not good and gave up thinking about them. July's hot sun brought them all up, thriving and brilliant. In this class we find Portulacas, Balsams, Amaranths and Zinneas. The soil in which any and all seeds are sown should be light and well pulverized; cover thin to about their own depth. Boxes are better than pots for sowing seed. After they are sown and covered, press down lightly upon the soil in the same manner as you would if sowing vegetable seeds. This is to prevent the air from drying the seeds. If some particular variety of a class is desired, then we must take cuttings. For example: If we wish a Petunia of a certain kind and no other, we must take a slip. In taking a cutting, be sure that the plant is a healthy one. If the slip snaps off then it is all right to root readily, if it bends and does not break, it is too old, and although it may root it will not do as well as the younger growth. Among the Geraniums they recommend the Zonal as the easiest for us to manage in our climate as a summer bloomer. For winter, we should root new slips each spring and keep them pinched back until we wish them to bloom. There are some troubles coming to the flower grower in the sweet heaven sent odor of the country even. The rose slug is a great pest, they make an attack before we are aware of it and strip our bushes leaving them looking like so many brown sticks. The best of all insecticides, especially for these is powdered white hellebore, dust it over the leaves while wet. Mildew can be well treated with sulphur. In August we begin to pot bulbs for winter blooming. They are imported yearly. As soon as they can be gotten let us set one pot of Hyacinths and Chinese Lilies for Christmas. One, two, three or four bulbs can be potted together. Leave about one quarter of the bulb uncovered. Set them deep enough to keep them steady and firm as they root entirely from the bottom. Hyacinths potted in this way must be put in the cellar for three weeks to root and get started. Early

Narcissus put in pot the first of September will bloom in December, taking nearly five months for flowering. If we pot a few bulbs each month we shall have a succession of blooming plants the whole winter and spring. They are little or no trouble as they will stand more cold nights than any other we can deal with. The best and most beautiful among the Hyacinths are the early semi-double white and the rose, both of which I have at this time in January in full blossom, while the blues and yellows are full of buds. The last named are the Roman. I don't feel nearly as well pleased with them as the former. Tulips can be treated in the same manner and bloom for us all the long, dreary, dark winter.

If you choose you may add the Bermuda Easter lily. I have never had this kind of lily in blossom. In its place have had a Lillum Longiflorum forced, giving three beautiful flowers and one bud for Easter Sunday. This kind of lily is adapted to out door culture, yet it is forced nicely, is more hardy and we can depend upon it while we much doubt our ability always to manage our Bermuda lily. In all cases where the pot seems small for any plant and we do not wish to retard the growth by repotting, top dress heavily if the pot is decently large. By following this line of work we shall have flowers all the year through. It takes only a few minutes now and then, we scarcely miss the time, it gives us recreation diverts our thoughts bringing a pleasant change every day to break the monotony. They not only divert and please us but especially speaking are great and efficient helpers. For those of us who have searched diligently among nature's handiwork feel certain that we have found no thing so minute as to be without evidence of Divine thought, care and wisdom. So from these small teachers, the flowers, we may gain many valuable lessons. They are eloquent when interpreted aright. First, and superior to all other sentiments, is expressed the loving care and solicitude of the Good Father for His children's delight and comfort, for with lavish hand has he besprinkled the whole earth with their beauty and loveliness. No place is so poor and lowly, none too grand and lofty, for them to flourish; showing that He is not a partial Father, but one looking with as much delight upon the poor man's simple home, as the rich man's lordly palace. There are no conditions or circumstances where flowers seem to be out of place. They speak words of hope and of a happy future to the young bride at the altar, make bright halls of pleasure, are pleasant companions for the

isolated, bring comfort and cheer to the suffering and give consolation to the mourner. But their best mission seems to be to the poor who do not have them. They are silent messages from truth's own hand, messages which cannot be evaded or contradicted, which lift, purify and strengthen for better thinking and living. They are gifts that do not cost a great deal. Nature furnishes sunshine, dewdrops, soil and rain, a little of our time and effort and it is done. Flowers have a mission as mementos. For when we place one of these "green things growing," bear it in mind that it may be for the years when we are not. Perhaps our children's children may point them out as grandpa's roses or grandma's lilies long after the hand that set them has crumbled to dust. They will therefore help to keep alive a memory of us in the minds of those who come after us. How many desolate, brown old farm houses have been made to look perfectly beautiful by the thoughtful, beauty-loving women of the household. How cool and delightful that south window with the grape vine running over it. How bright those hardy roses on either side the walk. Oh, flowers are so restful and helpful! On some warm afternoon, when our mothers begin our seams without a knot in the thread, it won't stay in the needle, the scissors hide and then the spool rolls off under the lounge, laying all aside let's go out for a visit in the garden, pull a few weeds here, break off a discolored leaf there, admire them, enjoy their fine coloring and tinting, then go back and we shall generally find all the other things in regulation order. They have a mission in helping to preserve to us great moral truths. It is said in legend, that underneath the cross at the crucifixion, all around were blooming pure white flowers. When He said "It is finished" one drop of blood fell upon one white flower. It instantly took on a purple hue and all the surrounding flowers as well. They called that one the Passion flower. Who can ever look again upon this flower without remembering the Passion of Christ and all it means to suffering humanity. Another beautiful legend says that one day the Heather was placed in the valley alone, and chancing to look upon the bleak and bare mountainside, was troubled, for in the valley there was so much brightness and none on the mountain. The Heather approached the Rose with words of persuasion, to the end that it go up there; but the Rose was too comfortable and would not; neither would the Lily, or any other flower. At last, in discouragement, the Heather exclaimed:

"I am only a poor Heather; have no blossom or beauty, but will go and do what I can." With the expression of this resolution, from every leaf and branch sprang beautiful flowers, giving us our Scottish Heather Rose. This tells us that the buds of self-sacrifice always produce blossoms of sweet satisfaction. Flowers also are closely interwoven in the history of almost every country. The Rose of England represents many years of battle and bloodshed. The Shamrock of Ireland brings to our minds poverty, ignorance and superstition on the one hand, with zealous, patriotism and loyalty on the other. The Scottish thistle tells us of the self-reliant, hardy and staunch old Highlands with their Scotch plaids and bagpipes. The fair Lily of France is still the fair Lily, though reeking with blood and nourished by the guillotine. Why should we not have a National flower? Why not the Golden-rod, it's like many things in its surrounding. It is indigenous to our soil as are the everlasting hills; it looks so fragile with those large tufts of flowers on that slender stalk, but you try to break it off, you wish to know how much hidden strength and resistance there is stowed away in it. It's like the people who till the soil out of which it grows so carelessly. Of its past we know but little, may it represent to us, as a whole, and to all the generations following, peace, prosperity and happiness. Dear brothers, admonish the dear wives at home to remember,

> How akin flowers are to human things,—
> Emblems of our own great resurrection,
> Emblems of the bright and better land.

While they are emblematic of these future promises they are also emblems of sorrow and of woe. And although we cannot consider the yew and cypress without a dark and gloomy cloud for the instant passing before us, yet with the same glance we may behold the olive leaf of peace, the laurel wreath of victory. So it is all the way through, pleasure closely associated with pain. Is pain only exaggerated pleasure? Who knows? The juice of the Poppy in minimum doses alleviates, just beyond it means death. We weep for joy, we do the same in sorrow.

> And the poet, faithful and far-seeing
> Sees alike in stars and flowers, a part
> Of the self-same universal being,
> Which is throbbing in his brain and heart.

BULBS FOR THE WINDOW GARDEN.

By Mrs. B. T. Townsend. Freeport.

Change is delightful to a great many people. Though they are quick to recognize and appreciate all forms of beauty, they can never be satisfied to worship at one particular shrine. I am in sympathy with these changeful natures, for I can never content myself with the same flowers year after year, either in the window or the open ground. Bulbous plants are among the most showy and useful of our garden, greenhouse and window garden favorites, and with scarcely any exception, are easily managed, sure to bloom and require but little labor and care to enable them to produce their charming flowers.

Perhaps a few lines in the way of the early history and culture of the Hyacinth may be of interest. The Hyacinth was first introduced into England in 1596. At that time we find mention of only four varieties. In an old book on gardening published in 1629 we find there are mentioned and described eight different varieties of various colors, from pure white to deep purple. During the two hundred and sixty years that have passed since the above book was published there has been a steady improvement in the size form and color of the plant until the present time. More than four thousand varieties have been produced and catalogued but only about two hundred of the most desirable varieties are in general cultivation.

The Hyacinth is a universal favorite in the most extended application of the word. It is usually grown for forcing into flower during the dull, cheerless months of winter and early spring. The bulbs may be potted at any time during September, October or November in rich deep soil. Use pots from four to six inches in diameter, fill the pot rather loosely to the brim and press the bulb down into the soil so that only one-fourth of it appears above the soil. Then water sufficiently to settle the soil and place in a cool dark place where they may remain for several weeks to encourage a development of roots before the flower bud starts. They may be removed at any time after six weeks to a warm room in full light, when they will repay you for the little trouble with an abundance of bloom.

Daffodils. This charming class of bulbs is becoming quite popular, and why should it not? They are very desirable for winter blooming as they can easily be forced into bloom during winter months. The treatment of Hyacinths will apply to the Daffodils.

Lily of the Valley. This beautiful little plant is extensively grown for forcing in winter and early spring months. It is perfectly hardy, preferring a slightly shaded situation.

AMARYLLIS.

A formosissima, Jacobean Lily. This is a bulbous plant producing dark scarlet flowers, easily forced requiring the same treatment as hyacinths. They are natives of Guatemala and were introduced in 1658. It is called Jacobean on account of the brilliant scarlet of its flowers; which the Spaniards in Peru thought resembled the scarlet swords worn by the knights of the order of St. James, (Jacobeans) and is the only described species of this genus.

AGAPANTHUS.

From *agape*, love, and *anthos*, a flower. Linn. hexandria, tetragynia, natural order liliaceæ. Hexandria, having six stamens. Tetragynia, having four styles. Liliaceæ, a natural order of monocotyledonous plants belonging to the sub-class Petaloideæ and constituting the type of Lindley's lilial alliance of endogens.

The Blue African Lily, *A. umbellatus*, a noble plant with thick, fleshy roots and retains its leaves all the winter. There is a variety with striped leaves, *A. albidus*, has white flowers, but it does not differ from the common kind in any other respect. The African lilies all require a loamy soil, enriched. They should be fully exposed to the light; also plenty of water when they are in a growing state. The plants are always large before they flower, and when the flower stalks appear the plants should be in a large pot, so that the roots may have plenty of room. They should be abundantly supplied with water, taking care, however, not to let any remain in a stagnant state about the roots. Thus treated, this plant will frequently send up a flower-stock about three feet high crowned with twenty or thirty flowers, which will open in succession. It flowers in summer and forms a noble ornament to an architectural terrace, or a fine object on a lawn.

What a desolate place would be a world without a flower! It would be a face without a smile; a feast without a welcome. Flowers contain the language and sentiment of the heart, thus: Faith is represented to us in the blue Passion Flower; hope beams forth from the evergreen; peace from the olive branch; the cares of life are represented by the rosemary; the fair lily is an image of holy innocence; the victory of the spirit, by the palm.

MORE EDUCATION IN FLORICULTURE NECESSARY TO PROFITABLE ENJOYMENT THEREIN.

By Edward H. Goddard, Woodfords.

The citizens of this State are slow about embracing new ideas and novel fashions. We need something to quicken our pulses and enable our eyes to see further; and that something is a greater desire to keep abreast of the times, and in just that degree, that we acquire this desire in our different departments of business or social life, shall we see that people in other states and cities than our own are moving in advance of us. "We in this age, must live intensely to keep up with the moving throng."

The people of other places are ahead of us and in no way more so perhaps than in respect to plants and flowers.

Styles in these are all second-hand with us; Chicago, New York and Boston, each must have a hand before we are awake to the fact that we must have what they have enjoyed for a long time. American Beauty roses are grown extensively in other states but Maine gets along with very few, except for those people who visit our summer resorts.

It has been but a year or two that any interest could be drawn to Chrysanthemums, but we are beginning to realize their worth, and a Maine Chrysanthemum show is not far off. Orchids are grown in many places and meet ready sales, but a dozen flowers is a large stock for a Portland florist, and often one-half that quantity would glut the market. But after all our dullness we are quite alive to the fact that we *must have* plants and flowers.

It is now the proper thing for everybody to wear at least a solitary flower if any social is to be participated in. We work longest, without fatigue and execute better work, when in our happiest moods, and what, may I ask, lifts us out of our sordid, rutted ways of living and infuses inspiration, like gleams of something beautiful? Beauty is always restful and pleasing, wherever found, and in whatever form it may be found.

Almost every woman in our land will have plants indoors during the long winter months; she pets and cares for them to the best of her ability, while she watches anxiously for a flower, and it is often the case that a large amount of labor and love is required to pay for

a few flowers. She does enjoy their company but needs to know more about plant culture to rightly enjoy them.

Children too, love to care for some plant, often displaying more real affection in doing it, than would be thought possible. Care for flowers brings out the finer senses, makes loving hearts more loving and many a lonely moment of later years is made tolerable by tender associations brought to mind by some flower cherished in childhood. Ladies and children are not alone in the cultivation of plants; the men are often admirers as well, but far too seldom. The subject doesn't seem grand enough for many of them. But a nickel or dime is spent for a chew or smoke and it's all right. In many cases if the wife or child had the pennies to buy seeds, plants or flowers, where the lord of the house spends dollars for what dulls his senses, the home would be far happier and more attractive.

Now, in order to enjoy the floral world *more* we must know *more* about it, and we are supplied with much good material for this needed knowledge, if we would grasp it. The plant, seed and implement catalogues that flood the country are a direct means of very reliable information and are good reading, containing as they do, cultural directions for nearly every variety offered for sale. The vast amount of information given the public in this way can never be estimated. Strictly first-class horticultural journals are a great help and some that may be gleaned from on the subject, in newspapers and magazines, but in many cases with the latter, it can be seen the writer knew very little about the subject under consideration, but for pay or glory has tried to say something and has only effected misleading statements.

Then nearly all can procure Gray's small botany "How Plants Grow," from this can be learned the general laws that govern plant growth and cannot help being beneficial. "Gardening for Pleasure," "Gardening for Profit," "Practical Floriculture," and "Hand book of Plants," by the late Peter Henderson, are invaluable aids.

Fairs and exhibitions, where greenhouse products form a part, are all aids in this line. Frequent visits to well ordered greenhouse establishments are educational. Florists are benefited this way as well as others. Then much more can be learned by putting in practice the ideas gained by reading. Our Agricultural Colleges, State Agricultural societies and Experiment Stations are all aiding to diffuse this knowledge, and right here our Pomological Society is the potent factor. And let me suggest that each one here expend

one dollar this year to help the society (one dollar is the annual membership fee). It can then do better work and more of it, and *you* will receive the benefit.

Florists are professional men, or should be, just as much as physicians or surgeons, some of them being specialists in growing some particular varieties, just the same as aurists and occulists are specialists in their line, and some institution should furnish diplomas for the successful completion of a prescribed course in floriculture. As I have said before, florists ought to be teachers; but to become successful as such, they must get entirely rid of that old idea that gardeners have handed down to each other as a legacy, that theirs is a knowledge of mystery and to tell one solitary thing they knew, would simply be giving the thing away and this would soon make an empty pocket-book and they would lose their importance as well.

The late Peter Henderson realized the folly of this idea and taught the people how to cultivate plants and instead of becoming a pauper or losing position, see the immense business and wealth he accumulated and those who mourned his death reached from the Atlantic to the Pacific.

While our florists may realize the fallacy of this disposition they are at a disadvantage about overcoming it for in this State there are no florists' organizations; while in other states the florists' clubs are an invaluable aid for exchange of experience, ideas and socialities, furnishing as they do, seasons for debate, essays, lectures and exhibitions. In this State all the aid we get is from the management of State, county and town fairs. The benefit we derive is rather indirect and comes with long intervals and we are of little benefit to them, or at least, less by far than we would be, did we have an organization of our own to keep our enthusiasm up the year round.

Then, too, many of us disregard botanical names, this is wrong; but the mother of a dozen children would be just as sensible to say she'll raise them without names, because she can't remember what the minister christened them, as the florist to grow his plants without names.

It does very well for a pelargonium to be called Lady Mary, Martha Washington, Lady Washington, Pansy Geranium and more of a similar character in any certain locality, but, perhaps, outside that particular neighborhood people would be puzzled to know what was meant by them. Many people don't know that what we call a geranium is a pelargonium and not a geranium at all; geraniums

being mere weeds. One, so called, geranium, is Pelargonium Zonale and the Martha Washingtons are *Pelargonium Grandiflora*. The English, or French names of these are simply the different varieties produced at different times. I have been asked the good of learning and trying to retain these Latin names, they are all in Latin, and Latin is yet the universal language, so that if in Germany, Italy, France, Austria or England you call for *Viola tricolor* you would invariably get the pansy, while, perhaps, you could neither speak the country's language or the gardener a word of yours.

Even in our own country it facilitates matters when sending away for plants. If you want a palm, there is no need of going into explicit descriptions, but ask for *Areca lutesceus*, if that is the variety, and you won't get *Latania boibonica* or *Cocos Weddelianus*. Consequently it is well to know a little Latin, so that the learning of these names will be easier. Then again, usually the name is descriptive of some part, so some idea of the plant can be gotten from the Latin name. For instance, if *odorata* is connected with the name, we know it is fragrant; *crassilfolia* means thick-leaved, and so on.

If there is one place where florists need better education, it is in floral arrangements. There is much ignorance displayed here by people supposed to know something about it, and it is wonderful that the public tolerate such work as is in many cases put out. We are all at fault here, and because the general public, who see comparatively little of greenhouse flowers, pronounce anything beautiful that contains them, seems to be license enough to very often mangle the whole arrangement. There are scores of emblems that would never be recognized but for the frame on which they are made. The wire workers are sometimes at fault, but uniformity of surface without crowding, or bunching, with due regard to outline, are attainments all of us may acquire. The artist should be particular to follow all outlines and if the wire worker has failed to do his part, he should be familiar enough with the form he is filling, to make up the deficiencies of the mechanic.

The growth of floriculture in this country during the past few years has been perfectly marvelous. About fifteen years ago, I stood face to face with a structure that was to serve as my schoolhouse where I should learn about plant culture. That building was 16x24 feet on the ground, two-thirds span roof, covered in by 450 feet glass and we were unable to dispose of the plants in that

green house the first two years. To day 17,000 feet of glass worked to the best of our knowledge, isn't suffcient to supply the demand for this class of goods, on the very site of the first building. The business in the city of Portland was then a 16x24 affair as compared with the present. Now increase the knowledge of these things and more plants will still be used and more flowers called for. I would suggest that we interest the children in plant growth. Once impress a child's mind with a truth and it is fast, never to be shaken off. So I repeat, interest the children, teach them the principles of plant life and growth and the similarity of plants to the human family. They are very striking and one hour might be pleasantly spent discussing them. Let the little ones grow up with plants all around them, strew their paths with roses, for they will find the thorny bush far too soon. Let botany be taught in all the school grades, not simply a few weeks in the whole course. Let societies give children plants to grow, offering premiums for best grown specimens.

Our own society took a good step last season in this way, and although many plants returned were imperfect, still, good was done. An interest was aroused in some of the children, that will continue until they are men and women grown.

Much can be learned, too, by experimenting, trying to produce new varieties. We breed horses and stock, for points and records thus gained, make prodigies of new, their brains seeming active in no other place than where the deep furrows have been made by pedigrees. Just so can we breed plants for points with just as positive results. The pedigree of a variety produced by artificial fertilization may be just as correctly written as one for a trotter. The field is large, the work interesting, expense trifling, and the process can be accomplished by any careful person.

Hybridization of plants is an interesting study and much valuable information and pleasure as well may be gained by practicing the art. Expensive tools are not necessary, nor is fancy stock necessary. A pair of tweezers, a fine camel's hair brush, a tooth pick and a clean piece of well sized white paper being all the tools there is any need of possessing for ordinary work and all of these are not positively demanded. While best results crown the efforts of the most careful watcher, every one can derive pleasure and profit from it. We take Geraniums that differ widely in respect to color, growth or habit of bloom; select one of them, usually the one of best style of growth,

as the parent or seed plant. This one we are very particular to watch and almost before the flower bud opens we take the tweezers and pull off the anthers; we want these before the pollen is ripe so as to prevent the plant pollenating itself; then just as soon as the pistil shows itself to be at all gummy we are ready with the brush, pick up the pollen from the anthers of the other plant and place it on the pistil of the seed plant. We usually keep this up at intervals for several days; then the plant is set by itself and we wait. As soon as the seed ripens we plant it. Plants from this seed will be vigorous and under favorable conditions will bloom in from four to six months. The new plants will give many variations in color, perhaps none so good as either of the plants selected, perhaps nearly all will be good ones. If none are distinct enough to name, many will be good enough to place with the general collection and even here we have gained fresh stock. The process with the chrysanthemum is very much the same, only we never attempt to remove pollen parts from the seed flower, and do make use of the paper sheet, more, because it is easier to collect the pollen on this, and shake it into the flower, than to use the brush, on account of the large amount of petals in the way.

The seedlings are watched, yes, even coddled, to keep them growing finely and everyone is qui vive on the appearance of a bud, hardly waiting for nature to develop the flower in the anxiety and curiosity to know the color and form.

People would be more rational in their operations with plants if they knew only a little more about them. I have been disgusted during the plant season having so many ask questions similar to these. Shall I water this every day? How often ought I to water this? A good answer I think is, supply water to the plant as you take it yourself. We drink when we are dry only (i. e. if we are temperate) and do not wait until we are nearly famished before we slake our thirst. So generally water a plant when it is dry not waiting until there is a drought like Sahara and then imposing a flood.

Many plants are killed by intended kindness in this way. Then, day after day rooms are heated hot and no air admitted to freshen it. Plants, of course, are placed in a sunny window; so on the sun's return in the spring, many times we can almost hear the poor things panting for breath and see their very tongues cling to their mouths, they are so dry. Again the receptacles used for pots are

often simply ridiculous. Sizes all out of proportion to plants, vessels glazed inside and out with no vent to let surplus water escape. The perfect pot is a very porous cup with a large hole in the bottom. A large plant with lots of leaves may live and thrive in a tin can, because it takes up all the water supplied, but in the tub the small plant dies because the soil becomes sodden and sour, not being able to make use of so much fluid.

In the open, nature supplies trees and plants with a porous soil. The surplus water soaks away and the plant grows. To be the best cultivators we must closely imitate nature, and the more nearly we do so, the better success will crown our efforts.

Is there room for more florists and is there money to be made in the business? There is plenty of room and plenty of money, but the room and money are both at the top. Superior men are called for. Men of excellent, general education, willing to work with hand and brain, applying themselves 365 days every year are the sort we want and the kind to benefit the country. The time is not coming but is here, when there are enough men to do the menial work; the need is for leaders to set them to work and well trained men in any business can do that, and ours is no exception. We want men who not only know in theory but by actual practice, how to build homes, heat them, and grow the plants to fill them. Such men will be sought after in trade and in society and there will be the closest companionship between them and their patrons. Plant culture will be a pleasure and all because more is known about it. More education in floriculture is what we need to enjoy it more.

THE GROWING OF PLANTS.

By Charles. S. Walker, Peru.

In discussing this subject I shall aim to offer suggestions for the benefit of, and cautions to guard the success of, the modest flower and vegetable gardens of the busy mechanic or tradesman who has but an hour or two a day to devote to their care, and also the garden of the farmer whose labor is so exhausting and whose leisure hours are so few. Again I think of the little flower garden or the few scattered flower beds of the farmer's wife or daughters which are too often so grudgingly "set off" for their benefit by the head of the family who sees beauty in nothing except in the greasy sides of his pigs and pocketbook.

Having a desire to economize your time which is so valuable at such a gathering as this where so many special interests in the wide field of horticulture are to be served, I shall speak of vegetable and flowering plants collectively whenever their treatment is so similar as to admit of so doing. Hence the arrangement of matter presented must be in a measure sacrificed to time and space. Again, as experience teaches that a few simple suggestions in connection with many cautions tend more certainly toward success than minute and exhaustive directions. I shall hope to make this paper more valuable for its "don'ts" than otherwise.

SEEDS.

A glance at a few of the many seed and plant catalogues that find their way to our homes each spring and fall, reveals the fact that there is a wide range of prices in the different lists for the same varieties of seeds and further inspection shows that a low figure is the chief inducement held out by many dealers to gain sale for their wares. Many undesirable species and many worthless varieties are advertised and sold because they can be furnished at a large profit at five cents per packet. It is safe to say that the paper packet containing most five cent, and a good many ten cent seeds, costs the seedsman more than the seeds found therein and it is equally safe to advise that in general cheap seeds are to be treated as you would treat an offer of an all wool suit of clothes for six dollars or of a barrel of flour for three dollars and a half.

As an illustration of what good seeds do and ought to cost, it may be stated that it required $3 worth of pansy seed at wholesale prices, to produce blooms sufficient to make a creditable exhibition and take the $1 premium at the last fair held by this society.

As a rule "store seeds" are unsafe to use, the temptation being too great to "re-issue" old shopworn seeds that ought to be "canceled" and burned.

Again, handle with care the goods offered by those Barnums among seedsmen, who advertise novelties for prices great or small, which, judging from their descriptions, seem so perfectly suited to act as advance agents of the millennium.

While it may be desirable to have seeds of some species grown as far north as practicable, as for instance peas and perhaps some others which require only a short season for maturity, it is a positive injury to the value of most seeds to have them grown in high latitude, even more than to have them grown very far south. The reasons for this are that very many species, the plants and fruit of which we can grow with perfect success, require a much longer season than ours for the full maturity of their seeds. Please note that I am talking for the State of Maine garden now. Most reliable seedsmen grow a comparatively few specialties in seeds suitable to their locality which they are careful to have of high grade and this class of seeds should be sought after for they are never too dear at any price. Buyers should try to fathom the dark mysteries of the catalogue if possible to decide what are the really valuable and trustworthy stock of that particular seedsman. A necessary conclusion to be reached is that if many species or varieties of seeds are to be used, more than one grower should be patronized.

PLANTING.

We next consider the subject of planting and in this operation the first thing to be called for is the seed box, and for this purpose we have no use for birch barks, tin cans, or salt boxes. We prefer seed boxes of half and quarter inch stuff, not less than 8x10 inches and from that size up to 12x16 inches, and for most flower seeds they should not be over two inches deep. For tomatoes and cabbages, a depth of three inches is desirable. Too much earth room about seeds planted indoors is a fruitful source of trouble. Caution against deep planting of small seeds has been too frequently repeated to require more than an allusion here. The earth of the

seed-bed should be made very fine and well, but not very highly enriched with thoroughly decayed fertilizers.

TEMPERATURE.

The temperature which the seed box is to be given is an important matter and a mistake at this point may easily ruin the whole enterprise. As almost all seed packets have printed directions for treatment including temperature, etc., a little attention to those cannot fail to put one upon the right track in this matter. Of course we cannot expect to be very minute in our management in regard to temperature, but it will be sufficient to divide our seeds into two or three classes according to the degree of warmth required for healthy germination and then give them conditions accordingly.

Pansies germinate freely and vigorously only at a very moderate temperature. The aster and pink do well at medium degrees while the portulaca requires a very warm situation for germination. Situations favorable to each of these classes may be found in almost every kitchen or sitting room.

Seeds demanding little warmth may be placed remote from the fire and on or near the floor, while the highest available amount of heat may be found near the stove or register and near the ceiling. These positions are suggested only to secure proper germination and natural and quick germination insures vigorous and healthy plants from the start.

WATERING.

Many have experienced difficulty in properly watering their seed beds previous to germination when the seeds contained therein were so delicate and therefore so lightly covered that they were liable to be washed out by the most careful watering. To guard against this danger and also to save unnecessary watering it is suggested that pieces of cloth be cut exactly the size of the seed box inside and carefully laid over the earth after planting, and over this protection water may be quite carelessly turned and allowed to soak as it may. This serves to protect the seeds and also to check evaporation. We find for this purpose pieces of burlap such as may be obtained by cutting up bran sacks, just the thing for covering the boxes.

EXPOSURE.

As soon as the plants are up the question of exposure to the sun arises, and most likely the boxes will require a change of location, for of all things, the sun is a party to the transaction that cannot be ignored with very good success and the same may be said of a supply of fresh air for the seedlings. Pale, spindling or "drawn" plants are caused by a lack of sunlight or of air, or of both, and strict regard to these two elements must be paid, if any success is to be realized in growing either flower or vegetable plants indoors, for transplanting to the open ground at the proper season. Any properly ventilated living room is all right for plants, as far as air is concerned, provided the seedlings are not stifled by being covered closely by glass as we sometimes see them. But as regards sunlight it cannot be said that every sitting room or kitchen is all that can be desired for the growing of plants, or that even moderate success is to be expected from the attempt to grow them under conditions found in many such rooms.

An unlimited amount of sunlight and a high temperature are indispensable for the production of good and early tomato plants, and the rooms that furnish these to a sufficient degree are extremely few, if indeed any are to be found. But if one is out of reach of a greenhouse where such plants can be purchased, the next best thing must be done.

TRANSPLANTING.

As soon as plants are large enough to stand being disturbed, transplanting must be at once attended to, for plants suffer much more by a delay of transplanting than by being handled when too tender. In general, all plants are ready for handling as soon as they have made from two to four leaves, beside the seed leaves.

Plants intended for pot growing should be removed from the seed bed to small pots and here it is necessary to caution against the use of other than small ones, i. e., from two to three inches in diameter, and never use the latter size when the smaller will answer. Too much pot room is capable of as much mischief as too little of the same, and is much more liable to occur. Potting earth and the bed for transplants should be richer than the seed bed.

Plants designed for the gardens should be transplanted to other and generally deeper boxes, or to the hot bed or cold frame. For the first transplanting I have in mind no kind of plant that requires

a box more than three inches deep, except the cabbage, which demands four or four and a half inches. For transplanting either to boxes or to the open ground, a common steel table fork is a very good tool for making holes and packing earth firmly about the roots of the seedling. We, however, prefer a wooden dibble, which can be easily whittled from any hard or soft wood. Take a piece of wood six inches long and three-fourths inches square and from the middle taper it to a point at one end, smoothing off the other half for a handle.

HARDENING.

As the time draws near when the seedlings must be removed to the open ground the hardening off process must be employed which renders them capable of withstanding the vicissitudes and severities of open air growth,—the chill of night and the burning sun and drying winds of day—and all those variations incident to our New England climate, so well described by Mark Twain and which the State of Maine realizes to a superlative degree.

This operation consists of exposing the plants to sun, wind and cold air to as great an extent as safety to the plants will allow. A veranda is a good place for this work as is the lee of a fence or building. The cold frame is also a perfect place for the process.

From the first I have not expected to dwell at length on the special culture of different varieties, but it may be deemed proper to make an exception of celery, a luxury which is so fast finding its way into the home gardens, and the market demand for which is so rapidly increasing. In the first place the common error of exposing the seed box to the direct rays of the sun for any considerable portion of the day should be studiously avoided. The box may be placed in good light but much sun is quite sure to make mischief as the seeds must be covered with little earth and may very easily become what Peter Henderson has designated as "killing dry." After sowing the seed broadcast and covering lightly, a little water and a good deal of patience will be required of the planter, but if good seed has been used he may expect to see at the end of three or four weeks a good stand of half inch high celery.

As soon as these tiny plants have made three or four leaves the first transplanting must be done and this operation will present itself in a very unfavorable light to the bungling fingers of most men and the probabilities are that after a few dozen plants are pricked out the good lady of the house will have a cordial invitation

to prove her superiority in that line of work which she can readily do. A forty penny wire spike slightly flattened at the point is the best tool to use in handling celery at this stage. After growing these transplants in boxes a month it would be well to transplant again to a cold frame or, if the weather will permit, to a bed out of doors, where they may be grown to stocky and well hardened plants for their final removal to rows in the garden.

HOT BEDS AND COLD FRAMES.

The hot-bed as an accessory to the household garden is becoming each year more common and as it is within the reach of most people and is perfectly available for all, it may not be amiss to give very brief directions for its construction and management.

First, choose a location if possible on the lee side of a building or board fence. If this cannot be done, make a wind-break on the side of the bed toward the prevailing winds. The ground chosen should be free from all danger of flooding by surface water in the spring. For the bed an excavation should be made eighteen inches deep, six feet wide and as long as the bed is desired. For ordinary gardens a two or three sash bed would be sufficient. Sashes are generally three feet wide. The excavation should be lined up with plank which should rise above the common level of the ground from two to four inches, and on the edges of these planks the plank frame of the hot-bed should rest. The frame should be made of inch and a half pine and be well painted. The end pieces I would cut six feet long and taper them from sixteen inches wide at one extremity to four or six inches at the other. This would give a pitch to the sash of ten or twelve inches. The high and low walls of course must correspond with the wide and narrow ends of the end pieces. The sash can probably be bought all glazed cheaper than they could be made by any one besides a carpenter. The heating material to be used will generally be strawy stable manure and it should be placed in a pile and allowed to warm up thoroughly and be forked over two or three times to secure an even heat before it is put in the bed. Enough of this should be used so that when it is well trodden down it will be at least twelve inches deep. On this should be spread nicely enriched garden soil to the depth of six or eight inches.

After the bed is set up it should not be planted until the fierce heat is out which will be in about five or six days. As to watering,

the bed will speak for itself, but if the "fresh air fund" is not well sustained a lot of sappy, sickly plants will be the only reward the owner will receive for his labor and expense.

The hot-bed, though useful in growing some flower seedlings, and particularly in starting dahlias, is more especially profitable in forwarding the interests of lettuce, cabbage and tomato plants, and here allow me to remark that, aside from the greenhouse, the hot-bed I think is the only place where really early and good tomato plants can be grown.

The cold frame is simply the frame and sash of the hot-bed placed over a bed prepared in the open ground and therefore has no bottom heat. Its uses have already been indicated.

PROPAGATION BY CUTTINGS.

The ground included within the limits of my subject would not be covered were I to omit speaking of propagation by cuttings. Special processes of propagation requsite for special varieties of plants can not be given at this time, for I only have time to briefly refer to the treatment which is applicable to a number of the more common kinds in general cultivation as pot or bedding plants.

The propagating process that I would recommend as most practicable for home use is similar to what is called the "saucer system." To prepare for it I would obtain from the hardware dealer a sheet iron pan made about like an ordinary baking pan, only have it made water tight of galvanized iron if possible and about two and a half inches deep. To facilitate handling this pan which will be quite heavy when filled, it would be well to place it in a shallow box just large enough to hold it. The pan may then be filled nearly full of clear sand, fine, medium or coarse it does not matter which, and then thoroughly wet. In this sand you will stand your cuttings or "slips" always keeping the propagating pan as much in the the sun as possible and in a warm situation. Never let the sand be otherwise than filled with water, no matter if water stands on it some of the time. Perfect success in root cuttings demands that the cutting should be in the proper stage of growth when taken off and this must be learned by experience with different species: The only direction of much value that I have ever noted was, that the cutting should be taken when it will snap off readily and not bend or split. The time required for rooting varies greatly with different kinds of plants, but as soon as they have fairly struck root they should be potted or

planted out in boxes. It is a mistake to let the roots get two or three inches long before planting; a half inch or less is better. This method may be successfully employed with Abutilons, Coleus, Geraniums, Carnations, Begonias, Petunias and Verbenas, and probably, to a greater or less degree, with some others.

GARDEN LITERATURE

I will close by referring to the fact that every branch of business or art has its literature which is almost indispensable to its success or proper and highest enjoyment, and floriculture and gardening are not exceptions. I am sorry to say that floral literature like some other is of two classes—good and bad. In general I would characterize as worthless those magazines and papers, so called, published by seedsmen, for they, as a rule, are only catalogues or advertising sheets with just enough reading matter of a cheap grade in them to enable the publisher to evade the postal laws and get them carried over the country for two cents per pound instead of sixteen cents. They contain too much of what it would be better to remain ignorant. In regard to them Josh Billings' remark is quite applicable, "that it is better not to know quite so much than to know so many things that hain't so." But aside from this class there are enough good floral and garden publications, and I will mention that the best coming to my notice is the American Gardening, published by the Rural Publishing Company, New York.

And now having occupied much more of your time than I intended when I commenced this paper, I will close with the earnest hope that among the many simple and common-place suggestions made here, some may serve to contribute to the success of those who realize and try to obtain the benefits and pleasures to be derived from horticultural pursuits.

ORCHARDS AND ORCHARDISTS IN MAINE.

COMPILED FROM THE SECRETARY'S CORRESPONDENCE.

Mr. Geo. A. Longfellow of Winthrop now has about 1200 trees, mostly Roxbury Russets. About two-thirds of the trees are in bearing. In 1891 he sold 318 barrels of apples for $600. In 1892 he raised about 600 barrels of apples. Mr. Longfellow reports that good orchard land in his town can be bought for $10 to $15 per acre.

There are several large orchards in Turner, the Rickers of that town having one of the largest in the State. The past year (1892) they had a large crop, and it was reported that the fruit was sold in the fall for $3,000. There are several other orchards of large extent in Turner—one of these being that owned by the late Hon. Rufus Prince. Mr. D. J. Briggs has an orchard containing 800 trees, of which some 300 are in bearing. In 1891 he reports that he marketed fruit to the value of $475 and the following year $375. Mr. Briggs writes that it would be a positive gain to fruit growers in Maine "not to sell any but No. 1 apples."

Mr. S. R. Sweetser of Cumberland Centre has 300 trees on his farm and about one-half of them are in bearing condition. He writes that his orchard is worth double the price per acre of his farm. He also states that his orchard pays him forty per cent on the investment above actual cost of cultivation, etc.

A short distance from the Kennebec and near the Bodwell granite quarries in Hallowell is one of the best orchards in the State. It is owned by W. P. Atherton and contains 1200 trees with about 800 in bearing. The orchard is very largely Baldwins. The 1891 crop was 600 barrels and sold for nearly $850. The last crop was 525 barrels. Mr. Atherton in the winter of 1892 sent some of his apples direct to Liverpool. He has generally sold in Boston, but does not feel fully satisfied with the manner in which our Maine fruit is generally sold. He believes that the publication and distribution of practical experience in orcharding would be of great value to fruit growers.

In recent years T. M. Merrill of New Gloucester has handled large quantities of Maine fruit. He also is an extensive orchardist, having nearly a thousand apple trees on his own farm. About one-

half of these are in bearing condition and in 1892 bore 300 barrels of fruit. He writes:

"If the value of the land is fifty dollars before set to trees, the first year after being planted, the value is increased the cost of the trees and setting, from a business stand point. We will now estimate the value of that land five years hence. If it has been properly cared for, it is worth $300; but if it has had no care for the five years (quite a per cent of our Maine orchards do suffer from neglect) the land will decrease from its cost before planting, from the fact that it costs something to pull the shrubs up, so that the next practical orchard man can have a good start. I have some acres that I value at $1,000, — trees set out fifteen years ago.

"We should advise from our own experience. I think for the past fifteen years there have been more of my trees neglected than taken care of properly. We must first impress upon the minds of the amateur pomologist that to grow up a good orchard, so as to make it a profitable investment, it means a great deal of work and considerable money. We know that men who are now realizing good profits from their orchards have had the above experience.

"We must exercise good judgment where to hold our winter meetings. Maine is becoming a great fruit growing State, principally apples. The receipts are into the hundreds of thousands of dollars, and the magnitude of the orchards, with proper care, is sufficient to reach into the millions. The unoccupied land, well adapted to apple trees, is almost unlimited.

"It is important, I think, to hold our meetings in apple-growing sections, not in cities, and hold them for the special interest of fruit growing, not to accommodate some board of agriculture, and have the most of the time devoted to some impracticable papers, entirely foreign from our work. There was a time we were able to go alone, and now we think we must be lead by some other society.

"I well know that we have had help from the Board of Agriculture financially in holding our conventions, however, I think we had better come down to hard pan and hold our meetings in rural districts, and depend more upon home experience and talent, (although I regret very much that I have not the ability to aid the society as I recommend). The two or three days that are assigned to the feeble apple grower of Maine should be carefully considered and planned by the executive board, and plenty of time given for discussion after each paper.

"Many an orchard man in this country who is possessor of thousands of fruit trees, has received valuable information from others who have only one tree, therefore it is important to have time for discussion so as to swap experience."

David C. Averill in the town of Wilton, on the high land overlooking a beautiful valley, has an orchard of 800 trees, about 500 of which are in bearing condition, though a large part of the trees are young. For the 1891 crop he realized $250 and for the 1892 crop $340. He regards his orchard as the most profitable part of his farm.

Phineas Whittier of Chesterville has, we think, the largest orchard in Maine. He reports that he has about 5000 trees, with not far from two-thirds of them of bearing age. But of these many are young trees. He is still setting more trees. At last accounts he was unable to give the receipts of his orchard, as the inferior apples for 1891 and 1892 were evaporated and canned and sales had not been made. His green fruit is handled entirely by Hall & Cole of Boston, and he says they always do well by him.

S. H. Dawes of Harrison has a young orchard of 700 trees, about one-half coming into bearing. In 1891 he sold his apples for $263 and in 1892 for $450. He writes that his orchard pays him a net profit of fifty per cent on his investment. He also writes that more effort should be made to induce the fruit growers in the State to join our society, participate in our meetings and our fairs, so that the premiums will be more generally diffused then they are now.

Nestling among the hills in Carthage is an orchard containing 1800 young trees, about three-fourths of which are in bearing. It is owned by one of the oldest fruit growers in Maine. A neighboring farm on which the buildings cost $1500 is in the market for $1000, and this farm has quite an orchard, too. The price of this farm may mislead, if we do not state that Mr. Towle sold his apples in 1891 for $818 and in 1892 for $1060. He thinks our society should encourage the planting of nurseries. He writes that putting up his fruit costs him, for barrel thirty cents, picking, sorting and putting up, twenty-five cents, delivering at depot, fifteen cents. He adds, "If apples sell well it leaves a fair margin, otherwise the margin is small. If I should undertake to show you the profit of raising stock or farm produce I fear that the cost would

more than equal the income. I am satisfied that there is nothing we can raise on our farms in this part of the State that will pay as well as apples."

D. P. True, Leeds Centre, has 1,000 apple trees on his farm, and about three-fourths of them are bearing fruit. He states that his trees pay him 100 per cent profit, and we would not be surprised if he told the truth, for in 1891 he received $250 for his apples and in 1892, $550. He believes it would be an advantage to hold two winter meetings instead of one.

Fred Wright of Bath has an orchard of 200 trees in which he finds pleasure and profit in cultivating.

M. W. Libby of North Gorham has a young orchard of 500 trees. Only about one-third of the trees have begun to bear, but he reports a good crop and has shown nice fruit at our fairs.

F. E. Nowell, Fairfield, reports that his King and Spy apples sold for $4.50 per barrel; Fameuse, $4; Nodhead, $3.50; Baldwin, $3. He has 500 trees set, and 400 bearing. He estimates his orchard seventy-five per cent higher than the rest of his farm.

E. H. Keniston, Arnold, bought his farm five years ago. The trees were mostly natural fruit, and very wisely he has been working these over to better varieties. Farms containing good orchards may be bought for a low price.

Joseph H. Smiley, Vassalboro, writes that he has two hundred apple trees on two and one-half acres of land; seven-eighths are in bearing; 1889, 272 barrels, cash receipts $648.10; 1890, 218 barrels, $741.12; 1891, 232 barrels, $313.95; 1892, 260 barrels, $529 32. Land is worth from twenty-five to fifty dollars per acre and first-class trees in bearing from $500 to $800 per acre. I receive more net income from the orchard than I do from the remainder of the farm, which contains forty-two acres. The Society can do good work by encouraging the fruit growers to take better care of their trees and not to set more than they can keep in a high state of cultivation.

E. H. Cook of the same town has 1500 trees and about half of them are in bearing condition. The past two years the receipts from this orchard have been $300 and $450 respectively. Mr. Cook writes: "Orchard land in this town is worth $20 an acre. I

think an orchard just set is worth $50 to $80, a bearing orchard $200 to $700. The great range depending on varieties and condition of trees. Some orchards yield nearly nothing on account of treatment. I know of one orchard of three acres, which has paid $15,000 in cash in the last thirty years. With interest, total amount in work to credit of this three acres of apple trees is $20,000. The Society should teach fruit growers how to market their own apples."

A. E. Andrews, Gardiner, has 300 trees and one-half are in bearing. "The Society should not recommend so many varieties," he writes.

M. C. Hobbs, West Farmington, has about 1,000 trees now set. Not more than 100 of them are in bearing. His last crop was 125 barrels, which he sold for $230.

J. M. Pike of Wayne writes: "I have 2,200 apple trees in all, about twenty acres, (all Baldwins and Northern Spy), three acres of them are twenty-five or thirty years old and the rest of them I have set within ten years; all New York trees, they produced last year about fifty barrels of very nice fruit. My three acres of bearing trees will have paid for the last ten years interest and taxes on $2,000. I have six acres set ten years in one lot that I would not sell for $3,000 Twelve years ago it was an old sheep pasture worth about $6 per acre, every tree Baldwins true to name. I have had very good success with fruit trees and am much interested in fruit culture."

Charles I. Perley of Cross Hill in the town of Vassalboro has a thrifty orchard of 600 trees. He enjoys his orchard and is sure it is paying him well for labor and capital.

J. B. Wheeler of Corinth tells an interesting story of fruit culture in the following words which need no comment:

"I now have four hundred apple trees, about half in bearing. Fifty of them I bought with my farm in 1850, and that year they bore about a peck of grafted fruit. About fifty that are seventy-five years old I have since bought with adjoining farms and think I did not pay a dollar more for the farms than I should had there been no apple trees on them. The other three hundred trees I raised and set myself during the last forty-three years and have

no knowledge of what they cost me, but they kept me out of idleness, while some others were smoking their pipes; so I did not acquire the tobacco habit, which I consider quite an item saved. I make general farming my business and feed more apples to my horses, colts, cattle and sheep than I sell. I can raise good hogs with apples, the milk from my dairy and a little meal.

"Every creature on the farm likes apples, even the hens and the crows will steal my best apples with apparently as good taste and as much skill as the veteran apple-buyer. About all of my apples of good quality are sold by commission merchants in Boston, and if I have but a few barrels to sell I often divide them equally and send them to two men, they paying the freight from Bangor (twenty cents per barrel by boat) and taking out their commissions. I got net for them delivered in Bangor in 1891, $199.33 for 120 barrels, and I think it cost $60 to handle them and for barrels, leaving me net $59.33. In 1892 I sold 135 barrels in the same way for $311.55, and it cost $65 for barrels, and to handle them, leaving me net $246.55 for them delivered in Bangor. I think the apples used in the family, fed to stock and given away more than paid six per cent on the investment, taxes, labor, taking care of the trees, fertilizers, etc., so I cannot see but the above figures show the net income.

"From the foregoing I have on an average the two last years $102.94 from four acres of land being half my orchard which is $25.73 per acre, which is much more than any other four acres of my 340 acre farm averages. Good orchard land sells for $10 per acre, more or less as to locality, but good farms with much of the land fit for an orchard may be bought for the cost of the buildings. By a liberal supply of the Transactions of your Society showing the boys and young men just how to take care of the old apple trees and how to raise others you will do a great work. Inclosed is one dollar to constitute me a member of your Society the coming year."

E. A. Lapham of Pittston, one of our members and exhibitors, is an active orchardist and has 200 trees, from which he receives a good income, though many of the trees are young. He thinks the net profit is twenty-five per cent. His first trees were set twenty-three years ago and he thinks these pay him more profit than anything on his farm. He writes: "I am going to set some more trees this year. It is no use to set out trees unless they are looked after every year. Lots of people make mistakes here and set out

more trees than they care for and the consequence is the orchard doesn't pay them "

Nathan W. Harris, Auburn, has about 600 trees in bearing, though the trees are young. As yet he has not received much profit. Last year his apples sold for $267.19. He believes the Society can help fruit growing interests by "keeping at it." "For precept must be upon precept, precept upon precept, line upon line; here a little and there a little."

IN MEMORIAM.

"Wisdom is the gray hair unto men, and an unpotted life is old age."

It may have been my own father's gray hairs that early taught me to respect the aged. There was more than respect in my sentiments, for when I looked upon his whitened locks and watched over him in the declining years of a long and useful life, many thoughts would come to me of the long life his old age represented. I never meet an old person but there arises within me a desire to know something of the life that has been crowned with age. The joys of childhood and the fickleness of youth have disappeared, and the stern realities of life have developed both stability and character. Idle fancies have long since passed away and the practical judgment of age has given settled convictions in morals, in religion, in politics, in business, yea, in all the affairs of life the aged are confirmed in practice, positive in opinion and sound in judgment.

These and similar thoughts ran through the writer's mind at our Bangor meeting in 1890, as he looked upon the venerable form of Elijah Low. It had not been our privilege to meet before, and through the efforts of Mr. B. A. Burr of Bangor, whose death occurred only a few weeks after our meeting, Mr. Low's name was placed upon our programme for a paper on "Plum Culture." It was a special pleasure to meet him, for of the many who had courageously undertaken the culture of plums in the eastern part of the State, he was about the only one who had been successful. Only a few weeks before his beloved wife had fallen sick and passed to the land beyond. While he did not look like an old man,

he did appear, in many ways, to show the sorrows he bore. As he read his paper he was dignified in manner, and his words were terse, yet explicit and positive. There was not a particle of doubt in what he said. At the close of his paper, some one in the audience, who had evidently been beaten by the black-knot and curculio, called in question the possibility of vanquishing these foes of plum-culture. With the greatest composure and a repressed smile upon his face Captain Low said, "Come to my garden on Centre street, and I will show you healthy trees without black-knot"

His paper on plum culture had but one fault, and that was its brevity. But after listening to its reading in Bangor, and referring to it frequently since, I am very sure that it fully covers the subject. It is not embellished with unnecessary words, and there was no apparent effort either to elaborate his own knowledge or experience, and yet the plain facts of successful plum culture were clearly presented in this excellent paper. It was published in full in our Transactions for that year, and we commend it to the perusal of all who are interested in the subject or expect to make the culture of plums a success.

Only once since did I have the pleasure of meeting Captain Low. At our 1891 exhibition in Lewiston, he was present with an exhibition of the fruit grown on the trees of whose culture he had previously told us. His collection was the best and most complete of any we have seen at our fairs. It bore indisputable evidence of his success in plum culture. The same year he exhibited a collection of plums at an exhibition of the Massachusetts Horticultural Society in Boston. They were the wonder and envy of Massachusetts fruit growers, and that society awarded Captain Low a medal for his collection of plums. The following year he was intending to exhibit with us once more, but just before our fair he was stricken with apoplexy, and after an illness of only four days passed away August 18th, at the advanced age of eighty years.

Elijah Low was born in Bath, October 15, 1812. He was one of nine children and the last survivor of the family. The family removed to Bangor in 1831, and this city became the home of Mr. Low. He learned the carpenter's trade and in 1834 took part in building the Bangor House. A few years later he engaged with his father and brother in moving buildings of various kinds. He followed this business most successfully until a few days before his death. Mr. John O'Connell of Bangor, one of his employees, has

worked for Mr. Low over fifty years. After the father's death, the two sons continued the business. This brother was S. S. Low, whose name appears among the life members of our Society.

Captain Low was a man of patriotic impulses, and in the settlement of the boundary questions involved in the Aroostook War, was an orderly sergeant of the old Bangor Rifle Corps. In 1863 he was appointed provost-marshal by President Lincoln, his district containing Penobscot, Piscataquis and Aroostook counties.

Captain Low was a good citizen. He was one of the original members of the fire department in Bangor, and for a long time was chief engineer. In this capacity he was very popular and has the credit of introducing several reforms that largely increased the efficiency of the department.

At the age of twelve years he became a member of the Baptist church in Bath and from that time on he was identified with church and Sunday-school affairs. At the time of his death he was a deacon of the First Baptist Church in Bangor and a teacher in the Sunday-school.

Mr. Low was one of the earlier members of our Society. So far as age goes, we have the impression that he was the oldest man among our members, at any rate not more than one or two exceeded his age. He was an enthusiastic plum grower. About the time when he became a member of our Society, Bangor and vicinity were growing plums and pears the most successfully of any portion of our State. Through the influence of the Bangor Horticultural Society, great interest was developed in fruit culture. It is much to be regretted that the society, for reasons with which we are not familiar, has permitted its former activity to languish in recent years. But the black-knot came, and the curculio came also, and one by one fruit growers were obliged to succumb. But Mr. Low intelligently cared for his trees and persistently fought the enemies of plum culture. He overcame them and had the pleasure of producing an abundance of this most luscious fruit. This tribute to his memory as a man and citizen also bears evidence that intelligent perseverance overcomes all difficulties in fruit culture.

D. H. K.

JAMES NUTTING.

After having served three years in the War of the Rebellion, James Nutting, in 1865, settled in the wilds of Aroostook. Here he cleared the land and made his home in the town of Perham. Before the people of Aroostook supposed they could raise their own apples Mr. Nutting was planting his orchards. Guided by good judgment he selected varieties that were hardy, and then by growing seedlings he succeeded in growing probably the best orchard in northern Aroostook. This was not all, for he believed in fruit growing, and wherever he went he talked fruit growing to his neighbors and friends, he showed them the fruit he raised and the trees that bore it. Inspired by his example, others planted trees, and largely through his influence there are now many apple trees growing in the county. Mr. Nutting several times exhibited apples at our fairs and winter meetings, and it has been exceedingly gratifying to the members of our society to note the progress made, for we have claimed from the first that Aroostook ought and could raise her own fruit.

In order to determine the value of varieties for Aroostook, under the direction of Prof. Munson of the State Experiment Station, Mr. Nutting was in charge of experimental work for that part of the State, his special work being with apples and plums. Prof. Munson was fortunate in having the work so well placed.

Mr. Nutting was present at our winter meeting in Augusta in January last, apparently in his usual health. Shortly after our meeting we were shocked to learn of his death of Bright's disease at his home February 20th. From the *Maine Farmer* we abridge the following:

Mr. Nutting was fifty-four years of age, dying on his birthday. He was born in Bethel, and attended the common school; was apprentice at the printing business to the late Wm. H. Waldron, in the *Lewiston Journal* office, in 1857, and afterward in the *Democratic Advocate* office, Auburn. In 1859 was publisher of the *Courier* at Bethel. Enlisted in the 10th Maine Infantry in August, 1862, discharged in 1865, at close of war from the 29th Maine, to which he had been transferred. In 1872 purchased the *North Star* newspaper, which he sold after one and a half years, and has since attended exclusively to farming and fruit raising, with good success.

Census enumerator in 1880 and 1890, public administrator, justice of the peace, assessor, treasurer, S S. committee of plantation. He was a member of the House of Representatives in 1885, and of the Senate in 1891. He was a brave soldier, a loving husband and father, a noble-hearted friend, and one of the county's best and most highly respected citizens. The deceased leaves a widow and two children, together with other relatives, and an unusually large circle of friends to mourn his loss. With a pure and stainless character, genial in his ways, he was such a man as Aroostook people delighted to honor, and whom the people of the State delighted to meet.

INDEX.